

Attachment Style Stability, Life Events, and Adjustment across Adolescence:

A Longitudinal Study

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Abstract

Attachment Style Stability, Life Events, and Adjustment across Adolescence: A Longitudinal Study

Clairalice Campini, Ph.D.
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Extensive research has revealed that insecure attachment is associated with emotional and behavioural problems in childhood, adolescence, and adulthood. In addition, recent research on stability and instability of attachment styles has shown that both stable insecurity and attachment instability are associated with vulnerability factors such as early personal and family dysfunction, and personality disturbance. In this study, stable attachment insecurity and attachment style instability were considered vulnerability factors, and it was hypothesized that these vulnerabilities would be associated with more internalizing (dysphoria) and externalizing (delinquency, drug use) problems. A diathesis-stress model of adjustment was also investigated whereby attachment insecurity and instability put adolescents at increased risk for deviant behaviours and psychological distress in the context of negative life events. Adolescents ($n=149$) completed self-report measures of delinquency, drug use, dysphoria, and attachment style to mother four times, once when they were in grades 7 or 8 (Time 1), and again every year for the following three years. Results revealed that adolescents who reported more negative life events were less securely attached to mother, engaged in a wider variety of delinquent activities, and used a wider variety of substances. Findings also showed that insecurely-attached teens were more delinquent. Moreover, adolescents with higher variability in security tended to be more dysphoric. Findings also revealed that the combination of attachment insecurity and high negative life events rendered adolescents more vulnerable to engagement in delinquent activities.

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Table of Contents

List of Tables	vii
List of Graphs	viii
List of Appendices	ix
Introduction	1
Tenets of attachment theory	1
Attachment and psychological/behavioural adjustment	4
Life events and adjustment	9
Stability of attachment	11
Can attachment styles change?	14
Aims of the present study	21
Analyses of the present study	24
General Method	26
Sample	26
Procedure	27
Measures	28
Results	38
Preliminary analyses	38
HLM data-analysis strategies	46
The Contextual model of attachment style change: Findings	47

Mean security and security variability as risk factors, and the diathesis-stress model of adjustment: Findings	50
General Discussion	66
Attachment style, life events, and maladjustment: Findings and future directions	66
In sum: Findings in light of the models of attachment style change	73
Limitations of the present study	75
Concluding Comments	78
References	79
Appendices	93

List of Tables

	Page
Table 1. Means and standard deviations for predictor variables, outcome variables, and Social Desirability, at all time-points.	29
Table 2. Alphas for predictor variables, outcome variables, and Social Desirability, at each time-point	32
Table 3. Pearson correlations, between predictor variables, outcome variables, and Social Desirability, at Time 4.	41
Table 4. Security to mother: Cross-time Pearson correlations	42
Table 5. Delinquency: Cross-time Pearson correlations	43
Table 6. Substance-use: Cross-time Pearson correlations	44
Table 7. Dysphoria: cross-time Pearson correlations	45
Table 8. Results for Final Level 1 Model with Attachment Security as Outcome Variable	49
Table 9. Final Level-2 Results for the Prediction of the Intercept and the Time Slope for Attachment Security	51
Table 10. Results for Final Level 1 Model with Delinquency as Outcome Variable	53
Table 11. Final Level-2 Results for the Prediction of the Intercept and the Time Slope for Delinquency	55
Table 12. Results for Final Level 1 Model with Substance Use as Outcome Variable	61
Table 13. Final Level-2 Results for the Prediction of the Intercept and the Time Slope for Substance Use	63
Table 14. Final Level-2 Results for the Prediction of the Intercept for Dysphoria	65

List of Graphs

	Page
Graph 1. Significant Life Events by Mean Security interaction for the Delinquency intercept	57
Graph 2. Significant effect of Mean Security for the Time slope, with Delinquency as outcome variable	58
Graph 3. Significant Mean Security by Life Events interaction for the Time slope, with Delinquency as outcome variable	59

List of Appendices

	Page
Appendix A. Letter to Student (Time 1)	93
Appendix B. Letter to Student (Time 4)	95
Appendix C. Student Consent Form (Time 1)	97
Appendix D. Student Consent Form (Time 4)	99
Appendix E. General Information Form (Time 1)	101
Appendix F. General Information Form (Time 4)	103
Appendix G. Relationship Questionnaire (with Mother)	105
Appendix H. Self-Report Delinquency Questionnaire (Time 1)	107
Appendix I. Self-Report Delinquency Questionnaire (Time 4)	115
Appendix J. Self-Report Substance-Use Questionnaire (Time 1)	119
Appendix K. Self-Report Substance-Use Questionnaire (Time 4)	123
Appendix L. Multiple Affect Adjective Checklist	125
Appendix M. Social Desirability Scale (Time 1)	127
Appendix N. Social Desirability Scale (Time 4)	129
Appendix O. Adolescent Life Change Event Scale	131

Attachment Style Stability, Life Events, and Adjustment across Adolescence: A Longitudinal Study

It has been well established that an individual's attachment style plays an important role in adjustment across the lifespan. Extensive research has revealed that insecure attachment is associated with emotional and behavioural problems in childhood, adolescence, and adulthood. Research investigating stability and instability of attachment styles has shown that both stable insecurity and attachment instability are associated with vulnerability factors, such as early personal and family dysfunction and personality disturbance. This longitudinal study, involving a sample of adolescents, sought to further investigate attachment style instability, and better understand its significance in relation to behavioural and psychological adjustment problems. More specifically, it was hypothesized that stable insecurity and attachment instability would be associated with more internalizing (dysphoria) and externalizing (delinquency, drug use) problems. A diathesis-stress model of adjustment was investigated whereby attachment insecurity and instability might put adolescents at increased risk for deviant behaviours and psychological distress in the context of negative life events.

Tenets of attachment theory

John Bowlby's attachment theory (1969, 1973, 1980) is one of the most comprehensive and insightful theories of personality development and close relationships in modern psychology, and has had a profound influence on society, childcare policy, and the history of psychiatry (Karen, 1994). A fundamental tenet of Bowlby's theory is that one's early attachment relationships affect one's functioning throughout the lifespan. In his theory, Bowlby (1969, 1973, 1980) presented a model describing the processes by

which the attachment bond between mother and infant develop, as well as the adaptive functions this bond serves. Bowlby argued that a coordinated relationship progressively develops between infant and mother, a symbiosis serving a specific function: signals of distress expressed by the child are picked up by the mother, who in turn offers comfort and protection, as well as a sense of security which allows the child to explore the environment.

According to Bowlby (1969, 1973, 1980), these early attachment experiences are internalized as working models and set the stage for how future relationships will be integrated and influenced. The bond that becomes established between parent and child influences the development of the child's views vis-à-vis himself as well as others. These early care-giving experiences also provide the growing individual with unwritten rules as to how to express and deal with distressing emotions. In this way, according to attachment theorists, the quality of early mother-infant relationships plays a crucial role in the development of an individual's personality.

Ainsworth and her colleagues (Ainsworth, Blehar, Waters & Wall, 1978) developed a paradigm for identifying and describing individual differences in attachment among mother-infant dyads. These researchers noted that children differed in the ways they handled the stress of being separated and reunited with their mothers within the context of a "strange situation". The majority of infants, called securely attached, became mildly distressed in their mother's absence, but manifested relief and warmth upon reunion. The remaining infants, however, coped in two strikingly different ways, both of which Ainsworth et al. called insecurely attached. Some infants, termed anxious-ambivalent, expressed considerable distress when mother left, and seemed angry when

reunited. Other infants, termed avoidant, seemed undisturbed by their mother's departure, and did not manifest interest when she returned.

Ainsworth (1978) and other attachment theorists concluded that attachment styles develop as a function of the quality of interactions experienced by children with their early attachment figures. When parents are supportive, warm and responsive, children develop secure attachment style, that is, they learn to view themselves and others in a positive light. When secure children experience distress, they are able to express their anxiety and thus attract the attention of their caregivers, whose response and provision of safety reduces their negative emotions. Positive expectations of others and openness to negative emotions allows secure children to function well in interpersonal relationships (Cassidy, 1994).

On the other hand, when parents are rejecting and insensitive, children develop insecure attachment styles. In the case where parents are consistently unsupportive, an insecure avoidant attachment style emerges in childhood, characterized by a view of others as unavailable and uncaring, and of self as unworthy of eliciting care (Ainsworth, et al., 1978). In order not to further alienate caregivers, a child with an avoidant attachment style will suppress distress. This suppression results in problems with emotion regulation. An avoidant child's negative emotions may manifest themselves within the context of other relationships, or even unpredictably within the attachment relationship (Bowlby, 1980; Shaw & Bell, 1993).

When parents alternate between being supportive and rejecting, children develop an insecure ambivalent attachment style (Ainsworth et al., 1978). Since the caregivers are inconsistent in the ways they treat their children, when distressed, these children

experience a conflict between the desire to approach the caregivers to be consoled and the anxiety and fear of being rejected once again (Bowlby, 1973). Children with an ambivalent attachment style are believed to attribute the caregiver's inconsistency to a fault in their own personality and behaviour, and thus develop positive views of others and negative views of themselves. Like avoidant children, ambivalent children do not learn to cope effectively with their emotions: rather than minimizing their feelings, ambivalent children exaggerate their distress in order not to lose contact with their attachment figures (Cassidy, 1994). These insecure attachment styles can be considered strategies for the child to maintain proximity of the caregiver.

Attachment and psychological/behavioural adjustment

Insecurely attached children's inability to effectively regulate their emotions has important implications for behavioural and psychological adjustment. Previous research investigating the relation between attachment styles and adjustment has primarily been concerned with pre-school and elementary school samples. These studies, which have measured attachment to mother using the Strange Situation (Ainsworth et al., 1978) or an equivalent measure, provide evidence that children who are insecurely attached to their mother experience higher levels of behavioural and emotional problems as compared to children who are securely attached. In fact, compared to secure children, insecure children have been shown to engage in more negative acting-out behaviour, more aggressive and conflictual interactions with their mothers, and more hostile interactions with their peers (Erickson, Sroufe, & Egeland, 1985; Sroufe, 1988; also see Allen & Land, 1999 for reviews). Further, children who are insecurely attached to their mothers have been shown to be less socially competent, less empathic towards their peers, less

compliant, and less demonstrative of positive affect than secure children (Lafreniere & Sroufe, 1985; also see Allen & Land, 1999 for reviews). For example, in a Swedish study (Bohlin, 1996, reviewed in Grossman et al., 1999), mothers, fathers, and teachers of eight-year-olds were asked to rate the children's pro-social orientation and social withdrawal at different time periods. Children who had been insecurely attached at 15 months were functioning socially at ages eight and nine less well than children who had been classified as secure in infancy.

Although previous research has mainly been concerned with the relation between attachment styles and adjustment across stages of childhood, more recently researchers have investigated this topic in adulthood. With regards to adults, insecure attachment to mother and romantic partner have been associated with greater loneliness, shame proneness, anger, anxiety, depression, self-consciousness, and lower self-esteem, using both self-report and questionnaire measures (Collins & Reid, 1990; also see Shaver & Hazan, 1993 for reviews).

The relationship between attachment and adjustment in adolescence has been less investigated. Studies to date have shown that adolescents categorized as insecurely attached are less adjusted psychologically than those with secure attachment styles. Compared to their securely attached peers, it has been noted that insecure teens are more anxious, more hostile, less efficient in emotion regulation, less socially competent, more psychologically distressed, and less self-confident (Allen, Moore, Kuperminc, & Bell, 1998; Cole, Ferenz-Gillies, Fleming, & Gamble, 1993; Cooper, Shaver & Collins, 1998).

Certain studies have examined the relation between adolescent attachment styles and engagement in deviant activities, with the hypothesis that these problem behaviours

(delinquency, substance use, and risky sex) represent alternative ways of expressing and coping with distress (Brennan & Shaver, 1995; Cooper, Shaver and Collins, 1998). This research topic is of key importance since adolescence is a period of great change both at the intra and inter-personal levels (Allen & Land, 1999; Peterson, Kennedy, & Sullivan, 1991). The teen years represent a time of important exploration and experimentation: adolescents forge and alter their conceptions about themselves and the world surrounding them, and may be involved in a range of risky exploratory behaviours, such as delinquency, smoking, drugs, and sex. Further, as Sroufe, Egeland, and Kreutzer (1998) have noted, a problematic developmental trajectory may be further consolidated during critical transition points, jeopardizing successful entry into young adult social roles.

According to Moffitt and Caspi (2001), “adolescence-limited” (AL) antisocial behaviour emerges with puberty, when otherwise healthy youngsters engage in exploratory behaviours during the relatively roleless years between their biological maturation and their access to mature responsibilities, a period called the maturity gap. During this time, it is virtually normative for teens to mimic the “life-course-persistent” (LP) youths’ delinquent style as a way to demonstrate autonomy from parents, win peer approval, and hasten social maturation. Findings supporting the theory of AL delinquency show that when young people enter adolescence they begin to admire aggressive peers and find good students less attractive (Bukowski, Sippola, & Newcomb, 2000).

According to Moffitt and Caspi, AL antisocial behaviour is common, relatively temporary, and near normative, while LP antisocial adolescents are few, persist in their behaviour through the lifespan, and are pathological. As well, rule-breaking behaviour

characteristic of the AL type increases between ages 10 and 17 years and is invariant across gender (Moffitt & Caspi, 2001; Stanger et. al., 1997). Survey statistics converge with Caspi's theory; a considerable number of North American adolescents engage in such risky activities (Adlaf, Ivis, Smart, & Walsh, 1995; Fonagy, Target, Steele, Leigh, Levinson, & Kennedy, 1998; Moffitt, 1993).

Although AL antisocial behaviour is regarded in theory as an adaptation in response to modern teens' social context, and although experimentation with exploratory behaviours such as delinquency and drug use may be normative and developmentally functional, Caspi (2000) as well as Cooper, Shaver, and Collins (1998) assert that it carries nonetheless substantial risk of harm. In fact, Caspi points out that a normative developmental history is not necessarily a salutary developmental history, and that the normative, moderate levels of risk in the backgrounds of AL youths may lead them to problematic consequences (leaving school, becoming a teen parent, developing dependency on tobacco, drugs, or alcohol, sexually transmitted diseases, a criminal record, and incarceration).

Some research has indicated an association between insecure attachment and increased risky behaviours. For example, insecurely attached college students have been found to report greater use of alcohol to regulate negative affect (Brennan & Shaver, 1995). Further, in a study involving over two thousand adolescents, teens with an insecure ambivalent attachment style were found to be the most at risk behaviourally (Cooper, Shaver & Collins, 1998). More specifically, these adolescents reported the highest levels of delinquency, substance use and risky sexual behaviour, compared to avoidantly and securely attached adolescents. Of particular interest, attachment effects on

risky behaviours were largely invariant across gender and across early, mid, and late adolescence. The authors suggested that adolescents with different attachment types exhibit distinctive patterns of adjustment, and that these patterns are interpretable in terms of characteristic styles of experiencing, expressing, and regulating negative emotions. Along the same lines, lack of parental closeness was found to be associated with delinquency and drug use within each of the developmental periods investigated, early adolescence, late adolescence, and early adulthood (Brook et al., 1998).

An association between attachment insecurity and depressive symptomatology has been well established in the psychological literature (Muris, Mayer, & Meesters, 2000). In fact, adolescents who reported insecure relationships with their parents were found to exhibit lower self-esteem and more depression compared to their securely-attached peers (Batgos & Leadbeater, 1994). The relationship between insecurity of attachment styles and depression may be more pronounced for adolescent girls than adolescent boys (Kobak, Sudler, & Gamble, 1991). It seems that girls tend to manifest maladjustment through depressive symptoms and low self-esteem (Gjerde, Block, & Block, 1988). In fact, after about age 14 or 15 (early-middle adolescence), girls manifest more depressive symptomatology than boys (e.g., Nolen-Hoeksema, 1990). Moreover, stress and negative life events have been found to be more consistently associated with depressive symptoms for preadolescent and adolescent girls than for boys (e.g. Rudolph & Hammen, 1999).

Life events and adjustment

Associations between negative life events and less optimal adjustment have been well established in childhood (Jackson & Warren, 2000; Radke-Yarrow, Sherman, Mayfield, & Stilwell, 1990), in adulthood (Heady & Wearing, 1989), and in adolescence. With regards to adolescence, it has been found that both daily hassles, such as fighting with friends, failing an exam, or being grounded, as well as major negative life events, such as illness or death of a family member, tend to be associated with more internalizing problems (Kim, Conger, Elder Jr., & Lorenz, 2003; McCulloch, Huebner, & Laughlin, 2000), as well as externalizing problems (Jackson & Warren, 2000).

With respect to depression, research has shown an association between negative life events and depressive symptoms (Aseltine et al., 1994; Leadbeater et al., 1995). For example, Kim et al. (2003) in their longitudinal study showed that a higher number of negative life events predicted higher levels of depressed mood among adolescents, and that negative events predicted increasing risk for depressed mood over time. Moreover, several studies have reported no difference in the emotional impact of stressful life events by adolescent gender (Gore et al., 1992). Leadbeater et al. (1995) also reported that with respect to depressive symptoms, boys were as vulnerable as girls in response to negative life events.

With respect to externalizing problems, a study by Vaux and Ruggiero (1983) revealed an association between negative life events and delinquency, composed of: violence, property damage, drug use, theft, and minor offenses. Results showed that stressful life events were significantly associated with delinquent behaviours regardless of type of delinquent act. Along these same lines, more recent studies showed that

negative life events significantly and positively predicted delinquent acts one year later after controlling for previous level of delinquency (Hoffman & Su, 1997; Kim et al., 2003). Using data from a community sample of over 1200 adolescents, Wiesner and Windle (2004) examined several covariates of juvenile delinquency. Findings of their longitudinal study revealed that both unsupportive family environments, and negative life events discriminated between more normative groups and high-level chronic offenders.

In their longitudinal study, Kim and colleagues (2003) also found evidence regarding the existence of a reciprocal process through which negative life events and personal maladjustment appear to be mutually reinforcing over time. More specifically, Kim et al. showed that negative life events exacerbated both internalizing and externalizing problems in early, middle, and late adolescence, and also that, consistently across the years of adolescence, earlier delinquent behaviours and depressed mood predicted later negative life events after controlling for the previous level of negative life events. Kim et al.'s finding that reciprocal influences persisted over time is consistent with the idea of cumulative continuity proposed by Caspi and colleagues (1987). They suggest that problem behaviours such as delinquency and drug-use produce stressful consequences, which in turn tend to reinforce problem behaviours over time.

With regards to the studies existing to date examining associations between negative life events and adjustment problems, a variety of life events measures have been used. Recent studies examining this topic with older children and adolescents have used the following measures: the Junior High Life Experiences Survey (by Swearingen & Cohen, 1985, used by Kim, Conger, Elder Jr., & Lorenz, 2003), the Adolescent Perceived Events Scale (by Compas, Davis, Forsythe, & Wagner, 1987, used by McCulloch,

Huebner, & Laughlin, 2000), the Life Events Checklist (by Johnson & McCutcheon, 1980, used by Jackson & Warren, 2000), and the Adolescent Life Change Event Scale (by Yeaworth, McNamee, & Pozehl, 1992, used by Wiesner & Windle, 2004). These scales differ mainly in the number of items and variety of categories measuring life events. For instance, the young (12-14 years), middle (15-17 years), and older (18-20 years) adolescent versions of the Adolescent Perceived Events Scale (1987) consist of 159, 200, and 210 items, respectively, assessing different categories of life events (positive, negative, daily, major). The 31-item Adolescent Life Change Event Scale (1992) is a more concise scale, and focuses on the assessment of life events considered to be appraised negatively by adolescents.

Stability of attachment

A basic premise of attachment theory is that internal models of attachment remain relatively stable across the lifespan (Bowlby, 1973, 1980, 1982). According to attachment theory, (Bowlby, 1980) the working models of relationships that children form from their earliest attachments tend to become more stable over time, that is, crystallized and self-perpetuating, especially by late adolescence, and these working models serve to shape and explain future experiences. The individual is thus postulated to interpret life events via the working models developed through attachment relationships, a process similar to assimilation (Piaget, 1952). In this way, attachment style is maintained by an active process of construction: people process information and elicit feedback that confirms their internal models of themselves and others (Bowlby, 1973, 1980; Fiske & Taylor, 1991; Kirkpatrick & Hazan, 1994; Scharfe & Bartholomew, 1994). Thus attachment styles are trait-like characteristics which influence the course and outcome of

relationships, as opposed to being merely descriptions of the quality of an individual's current relationships.

Several studies to date lend support to the claim that attachment is stable over time, in infancy, adulthood, and adolescence, irrespective of type of attachment measure (self-report, interview). Scharfe and Bartholomew (1994) found that approximately 60% of adults reported the same attachment style over eight months (secure/insecure), as assessed by expert interview coders (70%), partner-reports (51%), and several self-report measures (51%). Kirkpatrick and Hazan (1994) reported that after four years, 70% of their sample endorsed the same attachment style (secure/avoidant/ambivalent), as assessed by a self-report questionnaire on romantic attachment. Baldwin and Fehr (1995) reviewed the results of their own studies and concluded that approximately 70% of people maintain their attachment styles over various time periods (secure/avoidant/ambivalent). Further, Treboux and Crowell (2001) (reviewed in Zimmerman & Becker-Stoll, 2002) found a stability of 85% for the AAI classifications over the course of 18 months during the life-transition to marriage, and a concordance of 82% with the AAI classifications five years later. More recently, Crowell, Treboux, and Waters (2002) examined the stability of adult attachment representations across the transition to marriage assessing 157 couples with the AAI three months prior to the weddings and 18 months into the marriage. They found that 78% of the sample received the same primary AAI classification at both times (secure/ preoccupied/dismissing).

With regards to adolescence, Adult Attachment Interview (Main, Kaplan, & Cassidy, 1985) responses of 17-year-olds (Hamilton, 2000), and 21-year-olds (Waters, Merrick, Treboux, Crowell, & Albershein, 2000) were found to be predictable from

Strange Situation behaviour to the mother 16 and 20 years previously. In Hamilton's study, 77% of adolescents retained their infant attachment status with respect to the secure vs. insecure distinction, while in the Waters et al. study the stability of attachment was 70%. Ammaniti et al. (2000) also found 78% stability of attachment security (secure/dismissing/preoccupied) as measured by the AAI from 10 to 14 years of age in a sample of Italian adolescents. The authors concluded that this four-year attachment stability is particularly cogent not only for the long test-retest period but also because it refers to the period of late childhood and early adolescence when major changes take place in body and sexual functioning as well as in the affective and cognitive fields.

Moreover, Fraley (2002) conducted the first systematic examination of the longitudinal literature on attachment stability and found that even over a period of 19 years, attachment was relatively stable. Fraley tested mathematical models of two theoretical perspectives regarding attachment stability on the basis of longitudinal data obtained from meta-analysis. According to one hypothesis, representations of early experiences are retained and continue to play an influential role in attachment behavior throughout the life course. In contrast, the other hypothesis states that early representations are subject to revision on the basis of new experience and therefore may or may not reflect patterns of attachment later in adulthood. Fraley found that the first hypothesis was able to predict stability in attachment patterns across long periods of time, thereby providing a viable mechanism for personality stability across the life span. More specifically, Fraley's analyses indicated that the degree of attachment stability between age one and subsequent ages is roughly equivalent to a correlation of 0.39. Fraley offered

the explanation that working models developed in the first year of life are developed pre-verbally, therefore they may in fact be more difficult to revise than subsequent models.

Thus, several studies show that approximately 70% of people maintain their attachment styles over various time periods, across different ages, across two and three-way classifications, and with the use of different attachment measures such as interview, self-report, and partner report.

Can attachment styles change?

Findings reveal that attachment styles tend to be stable over time, but that this stability is not absolute, since approximately 30% of individuals change attachment style from one time-point to the next. That is, a substantial proportion of people report changes in their attachment styles over time. To explain these findings, some attachment theorists propose that attachment styles are "dynamic" and "flexible" constructs, in that the working models underlying attachment styles can themselves be modified.

What causes attachment styles to change? In the limited literature investigating the issue of attachment stability to date, two perspectives have evolved, each positing a different role for attachment representations in development and each making different predictions about the degree of long-term stability that should be observed. These two perspectives, which serve as a general framework with regards to the present study, are discussed below.

The Contextual model

According to this model, all people are equally likely to undergo an attachment style change during the course of their lives given the right circumstances. Certain

researchers postulate that attachment styles change primarily in response to external factors, such as life events (Scharfe & Bartholomew, 1994). For example, Epstein (1980) suggests that attachment styles can be modified by means of compelling emotional experiences which are inconsistent with existing models, such as experiences arising within the context of significant relationships-with a spouse, for example, or a therapist. Major life transitions, such as leaving for college, getting married, or having children, may be times particularly conducive to a re-evaluation and re-organization of previous internal working models in the light of new experiences and new relationships (Baldwin & Fehr, 1995; Kirkpatrick & Hazan, 1994; Scharfe & Bartholomew, 1994).

Studies examining the Contextual model

Research has suggested that changes in infants' attachment categories may be related to changes in the family environment. Mothers' reports of a high number of stressful events predicted a change from secure to insecure attachment, and mothers' reports of a low number of stressful life events predicted a change from insecure to secure (Egeland & Sroufe, 1981). Further, some evidence suggests that stability of attachment style in infancy is related to the quality and stability of the child's environment. For example, Egeland and Sroufe (1981) reported 72% stability of attachment categories (from 12 to 18 months) for children in a high-quality care group and 48% stability for children in a maltreated group. According to the authors, life events may affect the caregiver-infant interaction, thereby influencing the quality of the attachment relationship.

Scharfe and Bartholomew (1994) sought to test the Contextual model in an adult sample. They conducted an eight-month longitudinal study using a sample of young

established couples involved in a romantic relationship of two or more years, with a mean age of 25 years. Attachment was assessed in three ways: using the Peer Attachment Interview (Bartholomew & Horowitz, 1991), an hour-long semi-structured interview asking subjects to describe their friendships, history of romantic relationships, and feelings about the importance of close relationships; *The Relationship Questionnaire* (Bartholomew & Horowitz, 1991); as well as the *Relationship Scales Questionnaire* (Griffin & Bartholomew, 1994). Life Events were assessed with *The Life Events Survey* (Sarason, Johnson, and Siegel, 1978), supplemented by twelve items from the Life Events Inventory (Cochrane & Robertson, 1973), to record the number and impact of 84 possible life events. Forty-one events were categorized as interpersonal (for example, “major change in the number of arguments with partner”), and 21 were categorized as non-interpersonal (for example “failing a course”). The number of interpersonal and non-interpersonal events, as well as the total number of events reported by each participant, was calculated. Participants rated the impact of the events on a seven-point Likert scale (-3 = extremely negative to no impact to 3 = extremely positive). The total absolute value of impact was also calculated by adding the absolute value of all impact scores.

Scharfe and Bartholomew’s study did not provide support for the Contextual model; findings showed that changes in attachment patterns were not consistently related to the reported number of life events in general, nor to interpersonal life events in particular. The authors suggested that since attachment patterns were assessed over an eight-month period, changes resulting from life experiences may not have yet been internalized.

More recently, Waters et al. (2000) and Weinfeld et al. (2000) have shown that changes in attachment security are related to meaningful changes in the family environment. Waters et al. (2000), following a middle-class sample from infancy to young adulthood, found that changes in attachment classifications from secure to insecure were associated with the occurrence of negative life events. Weinfeld et al. (2000) investigated the issue of life events in relation to attachment instability in a highly stressed sample, in which attachment-related negative life events were more frequent and more severe than in the Waters (2000) sample. In this high-risk sample, attachment stability was well below the 70% rate usually found in the literature, and many participants shifted from secure in infancy to insecure in early adulthood. More specifically, (at baseline 60% of infants were securely attached) 65% of secures at T1 shifted to insecure attachment at T2, 25% of insecures at T1 shifted to secure attachment at T2. The authors interpret these findings as suggesting that change may have been associated with specific life-events factors.

The Individual Difference model

In contrast to the Contextual model, according to the Individual Difference model proposed by Davila and colleagues (1997), some people are more prone to attachment style changes than others. Certain stable vulnerability factors, such as early personal and family dysfunction and personality disturbance, rather than changing circumstances, are hypothesized to render people vulnerable to fluctuations in attachment style, insecure to secure, or secure to insecure.

Studies examining the Individual Difference model

Seeking support for the Individual Difference model, Davila et al. (1997) investigated stability and change over a two-year period in a sample of young women making the transition to adulthood. Results largely supported the Individual Difference model of attachment change, although there was some evidence for attachment style change in response to current stressors. In fact, findings revealed that young women who had a personal history of psychopathology, had stable personality disturbance, and/or came from non-intact families were more prone to attachment insecurity in the form of stable insecurity or to attachment style fluctuations. In fact, women who experienced fluctuations in attachment style had more in common with women who were stably insecure than with women who were stably secure. The authors concluded that people who exhibit changes in attachment style may hold very tentative views of self and others that can fluctuate easily.

Davila and colleagues (1997) assessed attachment to romantic partner using Hazan and Shaver's (1987) single-item self-report attachment classification measure. Participants were asked to rate, on a nine-point scale, the extent to which each of three attachment styles (secure, avoidant, ambivalent) described them. Thus, these findings provide information exclusively regarding beliefs about attachment in adult romantic relationships.

As well, life events were tapped via the assessment of chronic stress and episodic stress. Chronic stress was assessed using an adapted version of the chronic stress interview (Hammen et al., 1987) where participants are probed to discuss several domains of their life such as friendship, love, and work, and receive an overall stress

rating based on the content of their responses and their behaviour manifested during the response. Episodic stress was assessed during follow-up interviews where participants were asked to describe in detail any stressful or important event that had occurred since the last interview.

Davila et al. (1999) conducted another study examining stability and change over the first two years of marriage in a sample of newlyweds, a sample “conducive to studying change”. Adult romantic attachment was assessed using the Revised Adult Attachment Scale (Collins & Read, 1990), a self-report dimensional assessment of attachment. This scale includes three subscales of adult attachment: Close, which measures the extent to which people feel comfortable being close to others; Depend, which measures the extent to which people are comfortable relying on others; and Anxiety, which assesses fears about abandonment and of being unloved. Results supported both models of attachment change. Changes in attachment representations were associated with both intrapersonal (personality disturbance, past history of psychopathology) and interpersonal factors (marital satisfaction of self and partner). In other words, people’s past experiences, their current views about relationships, and their experiences with partners were all associated with changes in their feelings of security in relationships. The authors also tested a diathesis-stress model whereby stable intrapersonal vulnerability factors may put people at increased risk for attachment change in response to stressful marital circumstances. In this context, the diathesis-stress model represents an integration of the Contextual model and the Individual Difference model. Certain findings supported this model: intrapersonal vulnerability moderated a number of

associations. The strongest example was that as vulnerable husbands became less maritally satisfied, they also became less comfortable depending on others.

Cozzarelli, Karafa, Collin, and Tagler (2003) sought to further examine the predictors of stability and change in attachment styles in a sample of 442 adult women who underwent an abortion. Across a two-year time-span, 46% of participants changed attachment styles, as assessed using Bartholomew and Horowitz's Relationship Questionnaire (1991). Among those women who changed their attachment style, stable vulnerability factors, such as history of depression, were related to increases in insecurity over time. Further, relationship-related life events such as divorce were not strongly related to attachment style stability or change.

Further, Davila and Cobb (2003) sought to test a key assumption of the Individual Difference model, that people with certain vulnerability factors will be more prone to change attachment styles because they have unclear models of self and others that render their attachment models unstable. Changes in self-reported attachment style (Relationship Questionnaire, Bartholomew & Horowitz, 1991) and interviewer-assessed attachment (Family and Peer Attachment Interview, Bartholomew, 1998) were examined in a one-year longitudinal study of 94 late adolescents (average 18 years of age) making the transition to college. Lack of clarity was assessed using Campbell's (1990) Self-Concept Clarity Scale (SCCS) which measures the extent to which people have a clear sense of self, as well as by an adapted version of the SCCS which measures the extent to which people have a clear sense of others. Results revealed that lack of clarity in models of self and others was associated with change in self-reported and interviewer-assessed attachment security, suggesting that people who are unclear or uncertain about who they

and others are will be more likely to show fluctuations in their levels of security. The authors also found that, as suggested by the model, vulnerability factors such as personality pathology or past history of psychopathology, were associated with lack of clarity. Further, lack of clarity mediated the association between the personal vulnerability factors and change in security. Results also partially supported the Contextual model of attachment change in that higher levels of attachment-relevant stressors (items reflecting romantic stress, conflicts, separations, and losses) were associated with decreases in security. This was true only for interviewer-assessed security.

Aims of the present study

Extensive research has revealed that insecure attachment is associated with emotional and behavioural problems in childhood, adolescence, and adulthood. Research investigating a more recent topic of concern, stability and instability of attachment styles, has shown that both stable insecurity and attachment instability are associated with certain vulnerability factors, such as early personal dysfunction and personality disturbance. This longitudinal study involving a sample of adolescents sought to further investigate attachment style stability, and to better understand the significance of attachment instability in relation to behavioural and psychological maladjustment. Stable attachment insecurity and attachment style instability were considered vulnerability factors in this study, and it was hypothesized that these vulnerabilities would be associated with more internalizing (dysphoria) and externalizing (delinquency, drug use) problems. A diathesis-stress model of adjustment was also investigated whereby

attachment insecurity and attachment instability put adolescents at increased risk for deviant behaviours and psychological distress in the context of negative life events.

The sample in the present study was ideal for studying stability and change: approximately 150 adolescents were assessed at four yearly points during adolescence, from ages 13 to 17, adolescence being a time of great change both at the inter-personal and intra-personal levels. Further, the measures of adjustment used were very relevant to adolescents' lives; a substantial number of teens experience dysphoria, substance use, and delinquency (Aseltine et al., 1998).

Life events, attachment, and adjustment

In accordance with the Contextual model of attachment style change it was hypothesized that life events would be associated with changes in security. Specifically, it was hypothesized that individuals who experienced a higher number of negative life events over the course of the study would manifest a lower average level of security, and decreasing security over time, than individuals who experienced a lower number of negative life events.

Further, it was hypothesized that life events would be associated with adjustment problems. Specifically, it was hypothesized that individuals who experienced more negative life events would be more delinquent, use more drugs, and experience more dysphoria in general, and increasingly over time.

Mean security and security variability as risk factors in relation to adjustment outcomes

In the present study, attachment styles were assessed four times, over the course of a three-year period. Attachment instability was defined as the degree of variability in

security ratings over time, regardless of the direction of change. The direction of the change was viewed as not as important as the change itself, because a three-year period covers a relatively small phase of an individual's lifetime; it was thought likely that the fluctuation detected was only one of many such changes from secure to insecure or vice versa in the years preceding the first assessment, or at alternate time-points than the ones assessed. Attachment instability was thus conceptualized in the present study, as in Davila et al. (1997), as fluctuations in attachment style, independently of the direction of the fluctuations.

It was hypothesized that both variability in attachment and attachment insecurity would be associated with externalizing and internalizing outcomes. Specifically, it was hypothesized that variability of attachment security as well as insecurity of attachment would be positively associated with average level of depression, delinquency, and drug-use, and with an upward trajectory of adjustment problems over time. It was also hypothesized that for dysphoria, these predictions would be stronger for girls than for boys.

A diathesis-stress model of adjustment outcomes

As a test of the diathesis-stress model of adjustment, it was hypothesized that attachment insecurity and attachment instability would be associated with at-risk behaviours and psychological distress, more strongly for those adolescents who experienced a greater number of negative life events. It was also hypothesized that for teens with lower security and higher life events, adjustment problems would increase more markedly over time, with the idea that reciprocal processes between attachment

insecurity and negative life events would render teens more vulnerable to heightened maladjustment, much like a downward spiral.

In light of the objectives of the current study, I attempted to address certain limitations of previous studies that examined attachment instability. One of the main drawbacks of previous work is the use of brief time-periods, such as eight months (Scharfe & Bartholomew, 1994), which may not be sufficient to assess attachment change. Another drawback is large gaps between testing points, such as 14 years, especially when this gap spans adolescence (Waters et al., 2000; Weinfeld et al., 2000), which fail to capture significant interpersonal and intrapersonal developmental changes. Finally, with regards to studies involving late adolescents, attachment to romantic partner has been used as a measure of security instead of attachment to parents (Davila et al., 1997); for most adolescents parents are still the primary care providers and many teens have not yet experienced romantic relationships, or the ones that have been experienced tended to be short-term. Further, mother has been consistently found to be the primary figure with regards to the attachment hierarchy, with father emerging as a secondary attachment figure, and peers appearing lower on the hierarchy. In fact, although attachment-related functions have been shown to progressively transfer to peers in adolescence, mother continues to serve as the primary attachment figure even for late teens (Fraley & Davis, 1997; Nickerson & Nagle, 2005; Trinke & Bartholomew, 1997).

Analyses of the present study

Researchers studying development have struggled with the issue of how to best capture change over time. Many believe that current methods do not provide adequate descriptions of how and why people change (Davila et al., 1999). According to Bryk and

Raudenbush (2002), until recently, research on individual change rarely identified an explicit model of individual growth and studies of change involving less than three time points are often inadequate for studying individual growth. Most longitudinal studies examine only two points in time and use multiple regression or cross-lagged correlations to predict change in one variable from initial levels of the other. This methodology is problematic in that

- 1) it cannot reveal dynamic relationships between variables over time
- 2) it fails to adequately describe change before trying to predict change
- 3) it assumes that both variables in question change in the same way (linearly)
- 4) it may provide an unreliable estimate of change
- 5) it focuses on a between-subjects level of analysis rather than a within-subject level of analysis

To deal with problems inherent in studying stability and change over time, Hierarchical Linear Modeling was used, a data analysis strategy that allowed change to be examined as a continuous process at both the between- and within- subject level of analysis.

Method

Sample

Participants came from an English-language high school in Lasalle, an older suburban area of Montreal, Quebec. They were first given questionnaires in grades seven and eight, and were tested again each of the following three years. The final sample obtained at Time 4 consisted of 149 adolescents (95 girls), ages 15-18 ($M = 16.15$, $SD = .74$) more or less equally divided between grades 10 and 11 ($n = 74$ and $n = 70$ respectively, $n = 4$ in grade nine).

From information provided by the adolescents on a demographic questionnaire, at Time 1, 75% of adolescents were from two-parent homes, of which 91% were intact and 9% were reconstituted. For adolescents in single parent families, 90% lived with their mother and 10% with their father. Ninety-eight percent of participants spoke English at home; approximately 96% reported living in Canada all their lives. Students varied in ethnicity; 62% reported one ethnic origin, 38% reported two or more ethnic backgrounds. Of the students reporting one ethnicity, 50% reported English Canadian, 30% reported European, and 7% reported French Canadian origins. An additional 3% of students were of Asian origin, 1% of African origin, and 1% of Latin American origin. The remainder reported having two (32%) or three (6%) ethnic backgrounds, the majority of which included English Canadian, French Canadian, and/or European.

The majority of students came from middle-class families, based on reported occupation of father, and mother if working, (Blishen, Carroll, & Moore, 1987). Mean socioeconomic status (SES) was 43.02 ($SD = 13.71$) for mothers and 43.11 ($SD = 12.26$) for fathers (characteristic of teachers, social workers, personnel clerks and sales

occupations) based on the 1981 socioeconomic index for occupations in Canada (Blishen, Carroll, & Moore, 1987). These levels are similar to the average SES in the general Canadian population (Blishen et al., 1987). (See Appendices E and F for the General Information Form).

Procedure

Within the context of a larger study, 460 participants from grades seven and eight were contacted to participate at Time 1 by letter sent to the home for adolescent and parental signature. Of these 460 students, 246 (54%) consented to participate (refusals 20% and no response 26%). One year later, at Time 2 when they were in grades 8 and 9, 201 of the Time 1 students agreed to participate in the follow-up (written consent from both teens and parents was 82%, refusals 2% and no response 11%). At Time 3 when they were in grades 9 and 10, 182 of the Time 2 participants were followed-up (written consent from teens alone was 93%, refusals 0.5% and no response 6.5%), and at Time 4, 149 of the Time 3 participants yielded the final sample (written consent from teens was 84%, refusals 4% and no response 12%). Total attrition from Time 1 to Time 4 was 40%. (See Appendices A to D for samples of letters to students and consent forms).

Adolescents who made up the final sample at Time 4 ($n = 149$) and those who dropped out after Time 1 ($n = 97$) did not differ significantly on Time 1 measures of dysphoria, attachment security to mother, social desirability, or most demographics. However, drop-out participants reported engaging in a significantly higher variety of delinquent acts ($M = 5.28$, $SD = 4.68$, versus $M = 3.49$, $SD = 3.57$), $t(160) = 3.17$, $p < 0.05$, and using a significantly higher variety of substances ($M = 1.07$, $SD = 0.92$, versus

$M = 0.70$, $SD = 0.71$), $t(161) = 3.41$, $p < 0.05$). Also, there was a marginally greater number of boys in the drop-out group, $p < 0.10$.

At each testing point, data collection was carried out at the high school during school hours, at a convenient time for the teachers. At Times 1 through 4, students completed a series of questionnaires regarding different aspects of their lives such as their relationships and friendships, as well as their involvement in various deviant activities (delinquency, drug use). Participants were tested in groups of 15 to 20 at a time. At times 1, 2, and 3, testing took place during two class sessions, whereas at time 4, testing took place during one class session.

Measures

Means and standard deviations of the measures are reported in Table 1 for each year.

The Relationship Questionnaire (RQ)

Developed by Bartholomew and Horowitz (1991), the RQ is a self-report measure which provides continuous ratings of one secure and three insecure attachment styles (Dismissing, Preoccupied, Fearful). Using Likert scales (1=not at all to 7= very much), subjects are asked to rate the extent to which four paragraphs describing each attachment style apply to them (see Appendix G). A continuous approach was used in this study rather than a categorical one. A variety of taxometric procedures have been applied to attachment data, and it has been determined that a continuous approach is best supported by the data, and therefore that attachment patterns are more indicative of latent dimensions, rather than latent types (Cummings, 2003; Fraley & Waller, 1997; Fraley & Spieker, 2003).

Table 1. Means and standard deviations for predictor variables, outcome variables, and Social desirability, at all time-points.

		TIME 1	TIME 2	TIME 3	TIME 4	ACROSS TIME
Delinquency	M	3.50	3.47	-	5.64	
	SD	3.58	3.99	-	4.62	
Substance use	M	0.70	0.93	-	1.53	
	SD	0.71	0.80	-	0.85	
Dysphoria	M	5.38	6.44	5.51	7.88	
	SD	5.32	6.76	5.29	6.17	
Attachment Security	M	5.60	5.64	5.82	5.57	
	SD	1.83	1.62	1.73	1.72	
Life Events	M	-	-	-	11.48	
	SD	-	-	-	4.17	
Social Desirability	M	3.13	2.75	3.22 ^a	2.94 ^a	
	SD	1.77	1.75	1.47 ^a	1.40 ^a	
Security Variability	M					1.55
	SD					2.03
Mean Security	M					5.64
	SD					1.36

^a Means and standard deviations pro-rated to reflect 7-item scale

At each time point, participants completed the RQ four times, once in reference to each of four specific attachment figures (mother, father, best friend, romantic partner) in counterbalanced order. For the present study, only attachment security to mother was utilized. Mean security was computed using the average security ratings across four time points.

Data indicate that the RQ is a reliable and valid tool that provides a rapid assessment of attachment quality. The RQ has adequate test-retest reliability ($r = .51$ across eight months; Scharfe & Bartholomew, 1994) and has been shown to correlate moderately with measures of self-concept and measures of interpersonal functioning (Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994; Horowitz, Rosenberg, & Bartholomew, 1993). The RQ also correlates significantly with attachment styles determined by family and peer ratings, interview, self-reports, and friend-reports (Bartholomew & Horowitz, 1991).

With respect to attachment security to mother, results from this study are comparable to previous research with adults (Mickelson, Kessler, & Shaver, 1997). Specifically, Mean security to mother measured with the seven-point secure scale on the RQ, was above five at each time point.

The Self-Report Delinquency Scale

The Self-Report Delinquency Scale (Elliott, Huizinga, & Ageton, 1985) contains 35 items which assess both the prevalence and frequency of involvement in general delinquency. For each item, participants indicate whether they have ever engaged in a particular delinquent behaviour, and if yes, the number of times in the past year. This scale is divided into nine subscales: Felony Assault, Felony Theft, Robbery, Fraud, Minor

Assault, Minor Theft, Illegal Services, Damaged Property and Public Disorder. At Time 1, in addition to the original 35 items, four items pertaining to taxing (group intimidation in order to obtain goods/money from others), involvement with the police (for questioning, or arrest), and being expelled from school, were included (see Appendices H and I).

At Time 2 and at Time 4, a shortened version of the Self-Report Delinquency Scale was given. Items included were the 19 acts most frequent at Time 1. Due to time constraints, The Self-Report Delinquency Scale was not given at Time 3, and priority was given to other measures not relevant to this study. An overall score of delinquency was used because correlations between subscales were high. The index of Delinquency used in the present study, derived from the 19 most frequent acts at Time 1, and all the 19 items at Time 2 and Time 4, was Variety of Delinquent Acts, which assesses the variety of delinquent acts carried out by each participant (regardless of the frequency) in the past year. This particular index was highly correlated with frequency of delinquent acts, and was retained as the only delinquency measure in this study's analyses.

The Self-Report Delinquency Scale is an internally consistent measure (with regards to the different subscales, test-retest reliabilities reported by the authors range from .58 to .93) that correlates with official delinquency rates, and with teacher and parent reports of delinquent behaviour (Elliott & Ageton, 1980; Elliott, Huizinga, & Ageton, 1985). With respect to the present sample, alpha coefficients were high (see Table 2).

Table 2. Alphas for predictor variables, outcome variables, and Social desirability, at each time-point

	TIME 1	TIME 2	TIME 3	TIME 4
Delinquency	0.91	0.88	-	0.88
Substance use	0.70	0.72	-	0.70
Dysphoria	0.89	0.92	0.89	0.88
Social Desirability	0.54 (7 items)	0.57 (7 items)	0.69 (15 items)	0.68 (15 items)

The Self-Report Substance and Drug-Use Scale

Also shortened from Elliott, Huizinga, and Ageton (1985), this 14-item scale assesses the prevalence and frequency of use of alcoholic beverages as well as different types of drugs (e.g., hashish, hallucinogens, amphetamines, barbiturates). Also, certain items are used to assess the extent to which alcohol and marijuana have led to risk behaviours at school or at work (e.g. "Have you ever been high on marijuana, at school or at work?"). For each of the 14 items, participants indicate whether they have ever engaged in the particular behaviour, and if so, the number of times in the past year (see Appendices J and K).

At Times 2 and 4, a shortened version of the Self-Report Substance and Drug Use Scale was given which included the 9 items most frequent at Time 1. Due to time constraints, The Self-Report Substance and Drug Use Scale was not given at Time 3, as priority was given to other measures not relevant to this study. The index of Substance use used in the present study, derived from items assessing alcohol, marijuana, hallucinogen, amphetamine, barbiturate use at Times 1, 2, and 4 was Variety of Substances Used, assessing the variety of substances used by each participant, regardless of the frequency, in the past year. This index was highly correlated with frequency of substances used and was retained as the only substance use measure.

The original Self-Report Substance and Drug Use Scale is an internally consistent measure (test-retest reliability = .65) which correlates with official substance use rates, and with teacher and parent reports of substance-taking behaviour (Elliott & Ageton, 1980; Elliott, Huizinga, & Ageton, 1985). With respect to the present sample, alpha coefficients were high (see Table 2).

The average number of substances used by teens in the current study was similar to rates reported by grade 11 high school students in Ontario (Adlaf & Ivis, 1997). Further, data obtained from the present study were similar in several respects to results shown by Statistics Canada's first national study of alcohol and drug use among 12- to 15-year-olds (Hotton & Haans, 2003). The study was based on data from over four thousand adolescent respondents aged 12 to 15 who participated in the 1998-99 National Longitudinal Survey of Children and Youth. Similar to the data reported in the national survey, results from the current study indicated that one third of teens at T1 (age 13) and T2 (age 14), and two-thirds of teens at T4 (age 16), reported having been drunk, that one-fifth of teens at T1 and T2, and half of teens at T4, reported smoking marijuana, and that over two-thirds of students at each time point reported having tried alcohol in the past.

Multiple Affect Adjective Checklist – Revised (MAACL-R)

Zuckerman & Lubin's (1985) 70-item mood checklist consists of 5 scales: anxiety (10 items), depression (12 items), hostility (15 items), positive affect (21 items), and sensation seeking (12 items). All scales showed satisfactory internal consistency except for the sensation seeking scale (Zuckerman & Lubin, 1985), which was thus not used in this study.

The anxiety, depression, and hostility scales are moderately and significantly correlated (i.e., between .4 and .6). The authors report that the internal consistency of the first four scales ranged from .73 to .95. The authors also show that the MAACL trait form (version used in present study) correlates moderately with the Depression and related scales of the MMPI (Psychasthenia and Social Introversion; Zuckerman & Lubin, 1985). As recommended by the authors, in the present study Dysphoria was calculated by

summing the Anxiety, Depression, and Hostility sub-scales. With respect to the present sample, alpha coefficients were good (see Table 2).

At all 4 time points, the current study used the 10 items of the anxiety scale, 9 out of 12 items of the depression scale, 13 out of 15 items of the hostility scale and the 21 items of the positive affect scale. Five items (i.e., cross, forlorn, incensed, sunk, and tormented) were judged unclear for young adolescents and were omitted (see Appendix L). Participants were asked to select the words that describe how they generally feel.

Adolescent Life Change Event Scale

Yeaworth, McNameee, and Pozehl's (1992) Adolescent Life Events Scale is made up of 31 items involving stressful events relevant to adolescents' lives such as parents getting divorced, failing subjects in school, losing a job. Adolescents indicate which of the items have happened to them in the last year. The authors report "a parent dying" to be the most upsetting item on the scale, "having problems with acne, overweight, underweight, too tall, too short" to be of medium severity, and "mother getting pregnant" a less stressful event.

For the present study, two items were dropped from the original questionnaire (being arrested by the police, losing a favorite pet), and six items from the Life-Events Questionnaire (Newcomb, Huba, & Bentler, 1981) were added (parents having money problems, parents fighting a lot, parent remarrying, getting pregnant or getting someone pregnant, getting or giving a sexually transmitted disease, getting into trouble with the law). These items were added because they have been found to be negative events frequently experienced by teenagers and their inclusion rendered the life events scale more comprehensive. Also, for the present study, for each item, participants were asked

whether or not 1) the event had occurred to them in the past three years (the duration of the study), and 2) the event had occurred to them before the past three years. Due to being added for the current study after the original larger study was designed, the Adolescent Life Change Event Scale was given only at Time 4. (See Appendix O)

In the present study, the weights quantifying item severity provided by Yeaworth et al. were not used. These weights were derived from a survey conducted in 1977 involving 207 14 year-old American adolescents in a suburban American school. Yeaworth et al.'s items were chosen because several researchers who have used these items cross-culturally have confirmed through their research and surveys, that they cover a comprehensive range of life events frequently experienced by teenagers (Yeaworth, McNamee, & Pozehl, 1992). Because in the literature there is no general consensus on the exact weights to be applied to items, due to the fact that weights are expected to shift depending on age, and because the sample from which the weights were originally derived might not have been representative of our Canadian suburban sample, it was decided not to apply this level of specificity to the life events data. Moreover, the six items that were added to the life events measures did not have weights associated with them.

Social Desirability Scale

At Times 1 and 2, a seven-item version of the Marlowe-Crowne Social Desirability Scale (Strahan & Gerbasi, 1972) was given to participants in order to assess their tendency to project favorable images of themselves. To increase reliability, at Times 3 and 4, a 15-item version of this form was given to participants. An example of an item is: "No matter who I'm talking to, I'm always a good listener". Participants were asked to

indicate True or False for each of the items. The abbreviated forms are reported to correlate highly, with similar reliability coefficients ranging from .73 to .83, with the original scale ($r = .90$; Strahan & Gerbasi, 1972), which has been established as assessing the tendency to respond with social defensiveness (Lobel & Teiber, 1994). (See Appendices M and N.)

Results

Preliminary Analyses

Dependent Variables

Dependent variables (Attachment security to mother, Delinquency, Substance use, Dysphoria) were screened for outliers and skew. Outliers were few, and except for Delinquency (see below), were brought to three standard deviations from the mean. Significant outliers and skew are mentioned where relevant.

Delinquency. With regards to Variety of Delinquent Acts, data were collected at Time 1, Time 2, and Time 4. Three outliers were present at Time 1, and one outlier was present at Time 2, at the high end of the distribution. Further, at all time points the distributions were positively skewed ($\text{skew} > 4$). The outliers as well as skew were left uncorrected and a Poisson Model was used for HLM analyses conducted with this measure. This non-linear model is recommended when count data and positive skew are present (Raudenbush, 2003, personal communication).

Substance use. With regards to Variety of substances used, data were collected at Time 1, Time 2, and Time 4. Neither outliers nor skew was present at any time point.

Dysphoria. With regards to the Dysphoria index, data were collected at all four time points. One outlier was present at Time 1, three outliers were present at Time 2, and two outliers were present at Time 3, at the low end of the distribution. Further, the distributions were negatively skewed at each time point ($\text{skew} > 5$). Outliers were brought in and square root transformations were carried out at each time point, to correct for skew. Because results obtained using the transformed variable did not differ from

those obtained using the untransformed scores, the untransformed variable was used in the final analyses.

Attachment security to mother. For certain analyses, particularly those related to the Contextual model, Attachment security to mother was entered as an outcome variable. Data for this variable was collected at all four time points. No outliers were present at any time point. At all four time points, the distributions were negatively skewed ($\text{skew} > 6$). Because this variable was mainly used as a predictor, it was left untransformed. Results from analyses with transformed scores did not differ from results from analyses with the untransformed scores.

Independent Variables

Independent variables were also examined for outliers and skew, and are mentioned where significant.

Life events. This variable was only assessed at Time 4. Because the variables Total negative life events in the past three years and Total negative life events before the past three years were quite highly positively correlated ($r = 0.6, p < 0.05$), only the first variable was used in the analyses. Neither outliers nor skew were present at any one time-point.

Social desirability. With regards to Social desirability, data were collected at each of the four time-points. Neither outliers nor skew were present at any time-point.

Variability of attachment security to mother. For each subject, the variance of the four ratings of Attachment security to mother was calculated. Three outliers were present at the high end of the distribution. The distribution was positively skewed ($\text{skew} > 9$).

Outliers were corrected and square root transformations were used to correct skew.

Results did not differ significantly from the analyses using the uncorrected variable. Thus the uncorrected variable was used in all analyses.

Mean security. Mean Attachment security was calculated across the four time-points. The distribution was negatively skewed ($\text{skew} > 6$). Square root transformations were used to correct skew. Results did not differ significantly from the analyses using the uncorrected variable. Thus the uncorrected variable is used in all analyses.

Intercorrelations between all variables (Social desirability, Delinquency, Substance use, Dysphoria, Life events, Sex, Variability of security, Mean security) were calculated at each time point. Since no differences in pattern emerged across time, Table 3 reports intercorrelations at Time 4. It is noteworthy that Variability of security and Mean security were negatively and moderately correlated; the correlation was low enough to retain both these variables and enter them both in analyses.

Tables 4 to Table 7 report cross-time correlations within Attachment security, Delinquency, Substance use, and Dysphoria.

Table 3. Pearson correlations, between predictor variables, outcome variables, and Social Desirability, at Time 4.

	2	3	4	5	6	7	8	9
1. Delinquency	.60***	.26***	-.13	.50***	.23**	-.45***	.06	.14 ^t
2. Substance Use		.23**	-.18*	.39***	-.06	-.24**	-.18*	-.14
3. Dysphoria			-.14 ^t	.25**	-.17*	-.42***	.16 ^t	-.19*
4. Attachment Security				-.06	.02	.16 ^t	.40***	.77***
5. Life Events					-.10	-.37***	.09	-.19*
6. Sex						.11	.02	.06
7. Social desirability							-.09	.14 ^t
8. Security Variability								-.45***
9. Mean Security								---

^t $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4. Security to mother: Cross-time Pearson correlations

Measure	2	3	4
1. Security Time 1	.47**	.40**	.26**
2. Security Time 2		.65**	.57**
3. Security Time 3			.59**
4. Security Time 4			-

** $p < .01$

Table 5. Delinquency: Cross-time Pearson correlations

Measure	2	3
1. Delinquency Time 1	.69**	.53**
2. Delinquency Time 2		.69**
3. Delinquency Time 4		-

** $p < .01$

Table 6. Substance use: Cross-time Pearson correlations

Measure	2	3
1. Substance Time 1	.54**	.43**
2. Substance Time 2		.59**
3. Substance Time 4		-

** $p < .01$

Table 7. Dysphoria: cross-time Pearson correlations

Measure	2	3	4
1. Dysphoria Time 1	.08	.56**	.34**
2. Dysphoria Time 2		.17*	.18*
3. Dysphoria Time 3			.58**
4. Dysphoria Time 4			-

* $p < .05$, ** $p < .01$

HLM data-analysis strategies

Hierarchical Linear Modeling, a hierarchical approach (Bryk & Raudenbush, 1992) similar to hierarchical multiple regression, was used to analyse each of the outcome variables, that is Delinquency, Substance use, and Dysphoria. Security to mother was also entered as an outcome variable in one set of analyses. For every set of analyses involving an outcome variable, the first step consisted of testing the unconditional model by entering the outcome variable alone in the equation without any level 1 or level 2 predictors. The important information from this model consists of the chi-square value of the variance component of the coefficient, which indicates whether there is significant between-subject variation, and the TAU and sigma squared values with which the intraclass correlation can be calculated (TAU divided by sum of TAU and sigma squared). The intraclass correlation indicates how much of the variance in the outcome variable can be ascribed to between-person vs. within-person sources.

In the second step, level 1 predictors were examined, beginning with fixed variables. Given that Social desirability was significantly correlated with all outcome variables, it was entered as a fixed level 1 variable in all HLM analyses as a control variable. If the effect of Social desirability was non-significant, it was eliminated from the model. Time was always entered as a random variable at level 1. For analyses of adjustment, Security to mother was also entered as a random variable at level 1.

The output of the level-1 model indicates whether the variance component for the regression slopes of the level 1 predictors (Time in all analyses, Security to mother in most analyses) is significant, that is whether the slopes vary significantly among participants. If the variance is non-significant, the variable is eliminated from the model.

This level-1 output also indicates whether the slope effects of the predictors are significant, and allows the calculation of percent of within-person variance explained by the level 1 model.

When Security to mother was entered at level 1 in the context of preliminary analyses of adjustment, results revealed consistently that the variance component for the regression slope of security was non-significant. This result indicated that the Delinquency, Substance use, and Dysphoria slopes did not vary significantly with changes in attachment among participants. Attachment security was thus eliminated at level 1 from all models. The variable Mean Attachment security to mother, the average security across the four testing times, was then used to examine Attachment security at the between-subject level of analysis (level 2).

In the third and subsequent steps, level 2 predictors were entered in the equation to predict the intercept and slopes of the outcome variables. As described below in more detail, level 2 predictors were entered in a step-wise fashion and interactions were explored. Interactions were computed using centered, z-standardized variables for continuous variables. The level 2 output indicates the significant intercept and slope effects for the predictors, and allows the calculation of the percent of between-person variance explained by the level 2 model in the intercept and the slope.

The Contextual model of attachment style change: Findings

In accordance with the Contextual model of attachment style change it was hypothesized that life events would be associated with insecurity. Specifically, it was hypothesized that individuals who experienced a higher number of negative life events over the course of the study would manifest a lower average level of security, and

decreasing security over time, than individuals who experienced a lower number of negative life events.

Unconditional model. To test these hypotheses, linear HLM analyses were performed with Attachment security to mother as the outcome variable. In the unconditional model (without predictors), the chi-square value of the variance component of the coefficient indicated significant between-subject variation, $\chi^2(143) = 550.61, p < 0.001$. The intra-class correlation indicated that 50% of the variance in Attachment security to mother was between-person, and that 50% was within-person.

Level 1 model. Social desirability was entered alone as a fixed level-1 predictor. The fixed effect of Social desirability was not significant, $t(409)=0.39, p>0.05$, and thus it was eliminated from the equation. In the following step, Time was entered as a random variable. The variance component for the regression slope of Time was significant, $\chi^2(141) = 218.79, p < 0.001$, indicating that the security slopes across time varied significantly among participants. The slope effect for Time was non-significant, however, indicating that security did not change linearly with time. The final level 1 model with Time as the only predictor explained 19% of within-person variance (see Table 8).

Level 2 model. Life events, Sex, and the Life events by Sex interaction were entered at level 2. When Sex and Life events were entered together in the equation, only Life events was significant at the intercept level. Sex and the Sex by Life events interaction were non-significant when all three variables were in the equation, so the final model contained only Life events as level-2 predictor for the intercept and slope.

Table 8. Results for Final Level 1 Model with Attachment security as Outcome Variable

Within subject fixed effects	Coeffic.	Stand. Error	<i>t</i> -ratio	Df	<i>p</i> -value	Level 1 variance
Level 1 variance in unconditional model						1.50
Intercept	5.64	0.15	38.60	143	< 0.001	
Time	0.05	0.08	0.59	143	0.56	
Level 1 variance after final model						1.21
Estimation of variance components for level 1 predictors						
	Parameter	Variance	St.dev.	χ^2	Df	<i>p</i> -value
Intercept	θ_{00}	2.07	1.44	428.68	141	< 0.001
Time slope	θ_{10}	0.30	0.55	218.79	141	< 0.001

Life events was a significant negative predictor of the Security intercept, $t(142) = -2.46$, $p < 0.05$, indicating that adolescents who reported higher numbers of life events over the past three years were less securely attached to mother on average across time points. The final model explained 4% of the between-person variance in the intercept (see Table 9).

In the prediction of the Time slope, Life events was non-significant, indicating that life events were not associated with changes in security over time.

Mean security and security variability as risk factors, and the diathesis-stress model of adjustment: Findings

It was hypothesized that both variability in attachment and attachment insecurity would be associated with externalizing and internalizing outcomes. Specifically, it was hypothesized that variability of attachment security as well as insecurity of attachment would be positively associated with average levels of depression, delinquency, and drug use, and with an upward trajectory of adjustment problems over time. It was also hypothesized that for dysphoria, these predictions would be stronger for girls than for boys.

Further, it was hypothesized that life events would be associated with adjustment problems. (These results are described in this section because they form part of the same set of analyses.) Specifically, it was hypothesized that individuals who experienced more negative life events would be more delinquent, use more drugs, and experience more dysphoria in general, and increasingly so over time.

As a test of the diathesis-stress model of adjustment, it was hypothesized that attachment insecurity and attachment instability would be associated with at-risk

Table 9. Final Level-2 Results for the Prediction of the Intercept and the Time Slope for Attachment security

Predictors	Coeff.	Stand. Error	<i>t</i> -ratio	Df	<i>p</i> -value	Variance uncond. model
Intercept						2.07
Intercept	6.56	0.36	18.05	142	< 0.001	
Life events	- 0.08	0.03	- 2.46	142	0.014	
Time slope						Level 1 variance after final model 0.30
Intercept	0.03	0.20	0.15	142	0.884	
Life events	0.001	0.02	0.07	142	0.941	
Estimation of variance components after predictors in final model were entered						
	Variance	St.dev.	χ^2	Df	<i>p</i> -value	explained var.
Intercept (\mathcal{G}_{00})	1.98	1.41	412.81	140	< 0.001	4%
Time slope (\mathcal{G}_{01})	0.31	0.55	218.75	140	< 0.001	0%

behaviours and psychological distress, more strongly for those adolescents who experienced a greater number of negative life events. It was also hypothesized that for teens with lower security and higher life events, adjustment problems would increase more markedly over time.

Delinquency.

Unconditional model. Non-linear HLM analyses were performed using a Poisson model, with Delinquency as outcome variable. In the unconditional model (without predictors), the chi-square value of the variance component of the coefficient indicated significant between subject variation, $\chi^2(143) = 1569.25, p < 0.001$. Due to the fact that a non-linear Poisson model was used, the values needed to calculate the intra-class correlation, as well as the values needed to calculate the percent variance explained by the level 1 and level 2 models, were not available in the outputs.

Level 1 model. Social desirability was entered alone as a fixed level-1 predictor. Examination of the fixed effect showed that Social desirability was not a significant predictor, $t(409) = -1.86, p > 0.05$, and thus it was eliminated from the equation.

In the following step, Time was entered at level 1 as a random effect. The variance component for the regression slope of Time was significant, $\chi^2(141) = 233.01, p < 0.001$, indicating that the slopes varied significantly among participants across time. The slope effect of time was also significant, indicating that the variety of delinquent activities increased significantly over time, $t(143) = 6.41, p < 0.01$, (see Table 10).

Table 10. Results for Final Level 1 Model with Delinquency as Outcome Variable

Within subject Fixed effects	Coeffic.	Stand. Error	<i>t</i> -ratio	Df	<i>p</i> -value
Intercept	1.20	0.08	15.62	143	< 0.001
Time	0.29	0.04	6.41	143	< 0.001

Estimation of variance components for level 1 predictors

	Parameter	Variance	St.dev.	χ^2	Df	<i>p</i> -value
Intercept	θ_{00}	1.18	1.08	883.72	141	< 0.001
Time slope	θ_{10}	0.10	0.32	233.01	141	< 0.001

This finding is consistent with data on Adolescent-Limited delinquency indicating that rule-breaking behaviour characteristic of the AL type increases between ages 10 and 17 years (Moffit & Caspi, 2001; Stanger et al., 1997).

Level 2 model. The variables Variability of security, Mean security, Life events, Sex, and their 2-way interactions were entered as predictors at level 2 in a step-wise manner. For both intercept and Time slope, the four main predictors were entered first as a block without the interactions. Mean security, Life events, and Sex were significant either at the intercept or slope level. Variability of security was non-significant at both levels and was eliminated from the equation. The Life events by Mean security, Life events by Sex and Sex by Mean security interactions were then examined one by one for significance. By this process, non-significant interactions were eliminated from the model.

The final model contained the following predictors at both the intercept and slope levels : Sex, Life events, Mean security, and the Life events by Mean security interaction (see Table 11). In the prediction of the intercept, Sex was a significant predictor, $t(139) = 2.76, p < 0.01$, indicating that boys engaged in a wider variety of delinquent activities overall than girls. Life events and Mean security were also significant predictors of the intercept, respectively $t(139) = 4.14, p < 0.001$ and $t(139) = -4.64, p < 0.001$, indicating that adolescents with more negative life events engaged in a wider variety of delinquent activities overall, and that teens with higher attachment security were less delinquent.

Further, the Life events by Mean security interaction was significant for the intercept, $t(139) = 2.37, p < 0.05$, indicating that as security decreased, there was a stronger positive association between Life events and Delinquency.

Table 11. Final Level-2 Results for the Prediction of the Intercept and the Time Slope for Delinquency

Predictors	Coeff.	Stand. Error	<i>t</i> -ratio	Df	<i>p</i> -value
Intercept					
Intercept	1.52	0.49	3.10	139	0.002
Sex	0.46	0.17	2.76	139	0.006
Life events	0.09	0.02	4.14	139	< 0.001
Mean Sec.	-0.29	0.06	-4.64	139	< 0.001
Life x Sec.	0.19	0.08	2.37	139	0.018
Time slope					
Intercept	-0.51	0.23	-2.19	139	0.029
Sex	0.02	0.08	0.26	139	0.796
Life events	0.01	0.01	1.30	139	0.197
Mean Sec.	0.10	0.03	3.60	139	0.001
Life x Sec.	-0.06	0.03	-1.88	139	0.060
Estimation of variance components after predictors in final model were entered					
	Variance	St.dev.	χ^2	Df	<i>p</i> -value
Intercept (\mathcal{G}_{00})	0.83	0.91	636.36	137	< 0.001
Time slope (\mathcal{G}_{10})	0.10	0.31	218.83	137	< 0.001

In other words, the association between security and delinquency was stronger for those reporting more negative life events. Life events was a moderator between Mean security and Delinquency (see Graph 1).

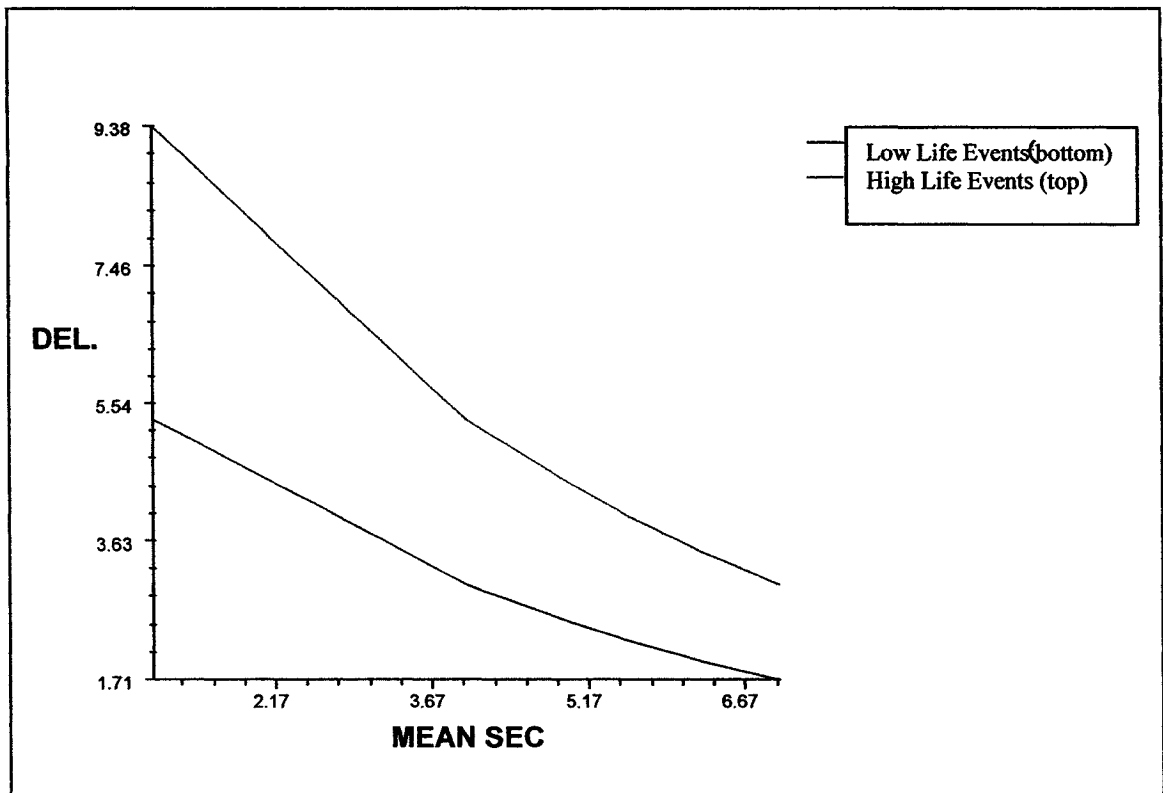
In the prediction of the Time slope, Mean security was significant, $t(139) = 3.60$, $p < 0.001$, indicating that the slope for teens with higher security was markedly steeper (see Graph 2). That is, securely-attached teens engaged in a progressively wider variety of delinquent activities across time, compared to their insecurely-attached peers.

Also for the Time slope, the Mean security by Life events interaction was marginally significant at the 0.1 level, $t(139) = -1.88$, $p < 0.1$. Of particular interest is the fact that the high security/high life events group and the low security/low life events group began at the same level at Time 1 in terms of delinquent behaviour, but whereas the latter group tended to remain relatively stable across time, the previous group tended to markedly increase in delinquency, especially from the middle to the end of the four-year time-span. These were the most divergent groups (see Graph 3). Insecurely-attached adolescents with higher negative life events were most delinquent across time, whereas securely-attached teens with fewer negative life events were least delinquent across time.

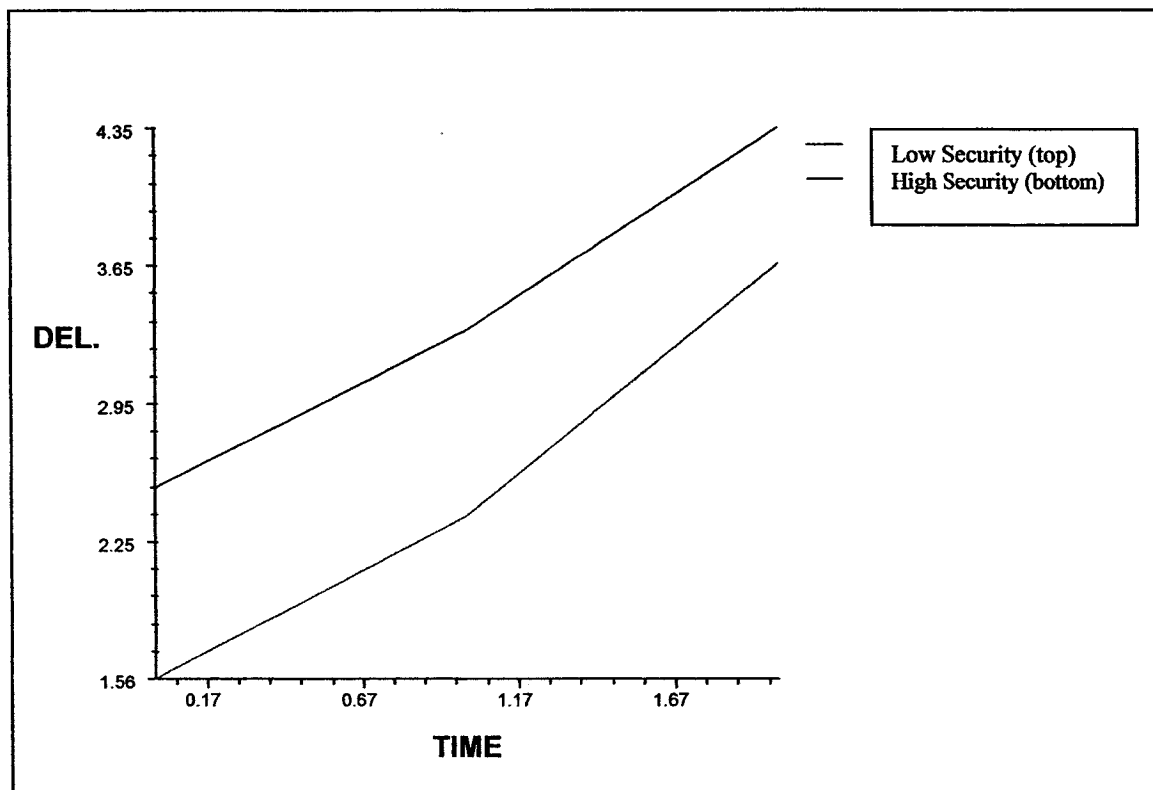
Substance use

Unconditional model. Linear HLM analyses were performed, with Substance use as outcome variable. In the unconditional model (without predictors), the chi-square value of the variance component of the coefficient indicated significant between subject variation, $\chi^2(143) = 379.19$, $p < 0.001$. The intra-class correlation indicated that 36% of the variance in Substance use was between-person, and that 64% of the variance was within-person.

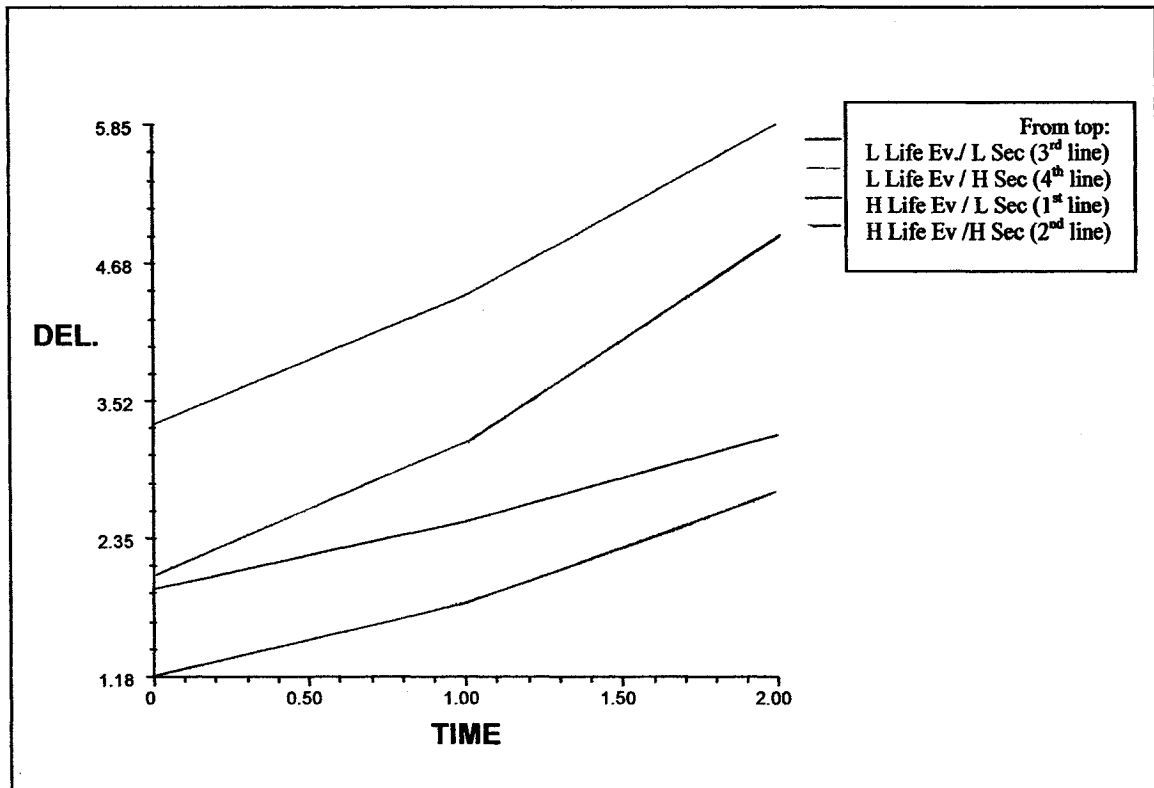
Graph 1. Significant Life events by Mean security interaction
for the Delinquency intercept



Graph 2. Significant effect of Mean security for the Time slope, with Delinquency as outcome variable



**Graph 3. Significant Mean security by Life events interaction for the Time slope,
with Delinquency as outcome variable**



Level 1 model. Social desirability was entered alone as a fixed level-1 predictor. Examination of the fixed effect showed that the Social desirability predictor was significant, $t(409) = -2.72, p < 0.01$, indicating that teens who obtained higher Social desirability ratings reported experimenting with a significantly lower variety of substances. Thus, Social desirability was retained in the equation. In the final model, Social desirability and Time were retained as level 1 predictors. In this model, the variance component for the regression slope of Time was significant, $\chi^2(141) = 185.88, p < 0.01$, indicating that the Substance use slopes across time varied significantly among participants. The slope effect of Time was significant, indicating that the variety of substances used increased significantly over time, $t(143) = 10.97, p < 0.001$. The level 1 model explained approximately 40% of within-person variance (see Table 12).

Level 2 model. The variables Variability of security, Mean security, Life events, Sex, and their two-way interactions were entered as predictors at level 2 in a step-wise manner. For both intercept and Time slope, the four main predictors were entered first as a block without the interactions. Variability of security, Sex, and Mean security were non-significant at both intercept and Time slope levels, and Life events was significant only at the intercept level. The Life events by Mean security, Life events by Sex and Life events by Variability of security were examined one by one with their corresponding main effects for significance. Since Life events continued to be the only significant predictor of the intercept, the final model contained Life events as the only level 2 predictor. The effect of Life events was significant, $t(142) = 3.52, p = 0.001$, indicating that adolescents who reported more negative life events experimented with a wider

Table 12. Results for Final Level 1 Model with Substance use as Outcome Variable

Within subject Fixed effects	Coeffic.	Stand. Error	t-ratio	Df	p-value	Level 1 var.
Level 1 variance in unconditional model						0.47
Intercept	0.80	0.10	8.05	143	< 0.001	
Social desirability	-0.32	0.16	-2.03	408	0.042	
Time	0.40	0.04	10.97	143	< 0.001	
Level 1 variance after final model						0.28
Estimation of variance components for level 1 predictors						
	Parameter	Variance	St.dev.	χ^2	Df	p-value
Intercept	θ_{00}	0.23	0.48	272.53	141	< 0.001
Time slope	θ_{20}	0.04	0.19	185.88	141	0.007

variety of substances overall. In conformity with existing survey data, no gender differences were found with regards to variety of substances used, including alcohol.

The final model explained 13% of the between-person variance in the intercept (see Table 13).

Dysphoria

Unconditional model. Linear HLM analyses were performed, with Dysphoria as outcome variable. In the unconditional model (without predictors), the chi-square value of the variance component of the coefficient indicated significant between subject variation, $\chi^2(143) = 269.21, p < 0.001$. The intra-class correlation indicated that 23% of the variance in Dysphoria was between-person, and that 77% of the variance was within-person.

Level 1 model. Social desirability was entered alone as a fixed level-1 predictor. Examination of the fixed effect showed that the Social desirability predictor was significant ($t(409) = -4.20, p < 0.01$), indicating that teens who obtained higher Social desirability ratings reported significantly lower dysphoria. Thus, Social desirability was retained in the equation.

In the following step, Time was entered at level 1 as a random effect. The variance component for the regression slope of time was non-significant, indicating that on average teens' Dysphoria slopes did not vary among participants. Time was therefore eliminated from the model. In the final level 1 model, Social desirability was retained as the only level 1 variable.

Table 13. Final Level-2 Results for the Prediction of the Intercept and the Time Slope for Substance use

Predictors	Coeff.	Stand. Error	<i>t</i> -ratio	Df	<i>p</i> -value	Variance uncond. model
Intercept						0.23
Intercept	0.17	0.19	0.86	142	0.389	
Life events	0.05	0.01	3.52	142	0.001	
Social Des. Slope						
Intercept	-0.22	0.16	-1.44	406	0.150	
Time Slope				Level 1 variance after final model		0.04
Intercept	0.30	0.10	2.99	142	0.003	
Life events	0.01	0.01	1.01	142	0.313	
Estimation of variance components after predictors in final model were entered						
	Variance	St.dev.	χ^2	Df	<i>p</i> -value	explained var.
Intercept (\mathcal{G}_{00})	0.20	0.49	252.58	140	< 0.001	13%
Time slope (\mathcal{G}_{20})	0.04	0.19	184.37	140	0.007	0%

Level 2 model. The variables Variability of security, Mean security, Life events, Sex, and their 2-way interactions were entered as predictors at level 2 in a step-wise manner. For intercept only, the four main predictors were first entered as a block without the interactions. All four predictors were non-significant. A Variability of security trend suggested that teens with higher variability in security tended to be more dysphoric, $t(139) = 1.70, p < 0.1$. The Variability of security by Life events, Variability by Sex, and Variability by Mean security interactions were examined with their corresponding main effects. The final model contained Variability of security, Mean security, and the Variability of security by Mean security interaction. Mean security was a significant predictor, $t(140) = -2.20, p < 0.05$, indicating that teenagers with lower security were significantly more dysphoric. Further, the interaction was significant, $t(140) = -2.08, p < 0.05$. It was not possible to further explain this interaction since the two variables appeared completely parallel in the HLM5 and HLM6 graphing programs (personal communications held with several people on this matter, including an HLM statistical consultant). The final model explained 30% of the between-person variance in the intercept (see Table 14).

Table 14. Final Level-2 Results for the Prediction of the Intercept for Dysphoria

Predictors	Coeff.	Stand. Error	<i>t</i> -ratio	Df	<i>p</i> -value	Variance uncond. model
Intercept						6.34
Intercept	10.77	1.82	5.91	140	<0.001	
Sec. Var.	0.03	0.16	0.18	140	0.861	
Mean. Sec.	-0.67	0.30	-2.20	140	0.027	
Interaction	-1.42	0.68	-2.08	140	0.037	
Social Des. Slope						
Intercept	-4.66	1.27	-3.67	406	<0.001	
Estimation of variance components after predictors in final model were entered						
	Variance	St.dev.	χ^2	Df	<i>p</i> -value	explained var.
Intercept (\mathcal{G}_{00})	4.41	2.10	214.41	140	< 0.001	30%

Discussion

In this longitudinal study, the relations between attachment instability and stable insecurity and internalizing and externalizing outcomes such as depression, delinquency, and drug use in adolescence were investigated. The Contextual model of attachment style change was used as a general framework to generate predictions regarding associations between life events and attachment security, and the Individual Difference model of attachment style change was used as a general framework to generate predictions pertaining to associations between attachment instability/ insecurity and adjustment. A diathesis-stress model of adjustment outcomes was also investigated.

Attachment style, life events, and maladjustment: Findings and future directions

In accordance with the Contextual model, which postulates that all people are equally likely to undergo an attachment style change during the course of their lives given the right circumstances, and that attachment style change occurs primarily in response to external factors, it was hypothesized that life events would be associated with insecurity. Specifically, it was hypothesized that individuals who experienced a higher number of negative life events over the course of the study would manifest decreasing security over time. It was also hypothesized that life events would be negatively associated with security.

The hypothesis involving the slope of Attachment security, that individuals with higher number of negative life events would manifest decreasing security over time, was not supported, and thus findings failed to support the Contextual model. My findings did show that negative life events were associated with lower attachment security on average,

however this finding does not provide evidence that life events are leading to changes in attachment security over time.

Regarding the finding showing an association between high life events and insecurity on average, it may be the case that these teens were insecurely attached in the first place, and that their insecurity led them to experience a higher level of negative life events. It may also be the case that the subjective experience of these negative life events may further reinforce and further crystallize attachment insecurity. For example, Davila et al. (1999) suggested that particularly insecure people may be contributing to their negative life circumstances and ultimately to the worsening of or maintenance of personal dissatisfaction and attachment insecurity. This may occur through a process consistent with that of stress generation, by which people with various psychological and personality problems contribute to stress in their lives, or through a self-verification process, by which vulnerable people look for and actually receive feedback that confirms their negative sense of self. Insecure people might thus seek out or contribute to negative life circumstances that result in dissatisfaction and further insecurity. On the other hand, secure people would maintain their security by seeking out and contributing to positive circumstances that result in satisfaction and further security. Further investigating these considerations may be especially important for adolescents, who are in the process of establishing more crystallized working models. Assessing negative life events at every time point, rather than in a retrospective way over three years as in the present study, would help address the transactional issue of which construct comes first, in that the effects of life events upon attachment security, and vice versa, could be tested from time point to time point.

It was also hypothesized that life events would be associated with internalizing and externalizing problems. Specifically, it was hypothesized that individuals who experienced more negative life events would be more delinquent, use more drugs, and experience more dysphoria on average, and increasingly over time. The hypotheses were partially supported. Adolescents with more negative life events engaged in a wider variety of delinquent activities overall, and experimented with a wider variety of substances overall. These findings support previous research that indicates that negative life events are associated with maladjustment (Jackson & Warren, 2000; Leadbeater et al., 1999).

It has been shown that delinquency, drug use, and depression increase during the teenage years (Adams & Gullotta, 1989), and I hypothesized this increase would be markedly steeper across time for those teens reporting high negative life events, because, as Kim et al. (2003) have suggested, there may be a reciprocal process whereby negative life events and personal maladjustment are mutually reinforcing over time, like a downward spiral. This hypothesis that individuals who have experienced more negative life events would be more delinquent, use more drugs, and experience more dysphoria increasingly over time, however, was not supported. This finding may be due to the nature of the Life events measure, which was given retroactively at Time 4; this measure does not tell us when the life events have occurred over the course of the four-year time-span. A greater level of specificity involving the assessment of negative life events at every time point would provide more detailed information regarding the relationship between life events and adjustment problems, from time-point to time-point.

This study also sought to examine the associations between both stable insecurity and attachment instability and at-risk behaviours and psychological distress. It was hypothesized that stable insecurity and attachment instability would render adolescents vulnerable to experience internalizing and externalizing problems. Specifically, it was hypothesized that variability of attachment security as well as insecurity of attachment would be positively associated with dysphoria, delinquency, and drug use in general, and with an upward trajectory of maladjustment over time. These hypotheses were partially supported; adolescents with lower attachment security were significantly more delinquent and more dysphoric on average than their securely-attached peers. These findings support previous research which indicates that attachment insecurity is associated with maladjustment. The findings did not support the idea that insecurity of attachment would be associated with a downward trajectory of adjustment over time.

Moreover, results revealed that securely attached adolescents more strongly increased delinquent activity over time, compared to their insecurely attached peers. In fact, the slope for teens with higher security was markedly steeper than that for teens with lower security, especially from the middle to the end of the four-year timespan. These results lend support to Caspi's findings (2000) that teenagers who exhibit adolescent-onset antisocial behavior are normative, and have healthy familial relationships, and that their delinquent activity tends to be low in early adolescence and increases moderately during the teen years, as compared to life-course persistent individuals who tend to maintain high delinquent engagement throughout the adolescent years.

As a test of the diathesis-stress model of adjustment, it was hypothesized that attachment insecurity and attachment instability would be associated with at-risk

behaviours and psychological distress, more strongly for those adolescents who experienced a greater number of negative life events. It was also hypothesized that for teens with lower security and higher life events, adjustment problems would increase more markedly over time, with the idea that reciprocal processes between attachment insecurity and negative life events would render teens more vulnerable to heightened maladjustment, much like a down-ward spiral. These hypotheses were partially supported. Results indicated that as the number of negative life events increased, there was a stronger negative relation between security and delinquency. In other words, the negative association between security and delinquency was stronger for those reporting more negative life events; teenagers who were less secure and who experienced a higher number of negative life events were significantly more delinquent than teenagers who were less secure but who reported a lower number of negative life events. Thus, the combination of attachment insecurity and high negative life events rendered adolescents more vulnerable to engagement in delinquent behavior.

Of particular interest was the interaction between Attachment security and Life events over time. Insecurely-attached teens with high negative life events were most delinquent across time, lending support to Wiesner and Windle's (2004) finding that both unsupportive family environments, and negative life events discriminated between more normative groups and high-level chronic offenders. A particularly interesting finding emerged with respect to the high security/high life events teens and the low security/low life events teens; both groups were equally delinquent at Time 1, but whereas the latter group tended to remain relatively stable across time, the previous group tended to increase in delinquency especially from the middle to the end of the four-year time-span.

The delinquency trajectory of the high security/high life events teens is similar to the one found to pertain to Adolescent-Limited delinquency (Caspi, 2000). It may be the case that AL teens have normative relationships, but are experiencing and learning to cope with high life stress. If these adolescents were followed up into adulthood, we would expect delinquency level to drop, in line with the AL profile. In addition, we would expect this group to become smaller in size if life stress were to continue into adulthood, because according to the Contextual model, sustained life stress will lead to a shift in attachment security.

The dynamics between negative life experiences and attachment insecurity and age need to be further investigated in order to better pin-point vulnerability factors for adolescence deviance at particular ages, so as to better target intervention strategies. For example, it would be useful to determine at what periods of childhood and adolescence the combination of attachment insecurity and negative life events is more likely to lead to delinquency. Conducting a longitudinal study assessing attachment security, life events, and externalizing problems at regular and relatively short intervals from birth to young adulthood would yield more detailed and fine-tuned information regarding the interactive dynamics existing between life events, attachment security, and delinquency. This type of longitudinal study would also allow researchers to take an additional step towards elucidating the transactional issue of which factor has the strongest influence on well-being, or lack thereof, negative life events or attachment insecurity.

In the present study, Variability of security and Mean security were negatively and moderately correlated, indicating that the more variable an adolescent's attachment ratings, the more insecurely attached he was on average across time points. This finding

does lend some support to the Individual Difference model, which postulates that attachment instability may be a form of attachment insecurity. Results also revealed a trend with regards to attachment instability; teens with more attachment variability tended to be more dysphoric. The process whereby attachment instability, which reflects tentative views and lack of clarity, is associated with dysphoria, needs to be further investigated, with regards to possible mediating variables; it could be the case for example, that tentative views are associated with low self-esteem, which are in turn associated with dysphoria. In a study using a sample of over 250 high school students and investigating the relations between life stress, self-concept clarity, self-esteem, and depressed mood, Chang (2001) found that the association between life stress and depressed mood was mediated by self-concept clarity and self-esteem.

Variability of attachment security did not emerge as a strong correlate of maladjustment within the context of analyses. This was surprising given the importance variability plays in the Individual Difference model of attachment change, where variability is considered a reflection of an individual's tentative views of self and others, and level of uncertainty (Davila & Cobb, 2003). This rationale is an interesting one, and surely deserves further investigation, as the present findings are somewhat inconsistent with previous literature pertaining to this matter (Davila, 1997, 1999). It could be the case that attachment variability holds a different meaning for adolescents with respect to their mother versus adults with respect to a romantic partner. The dynamics of identity formation during adolescence involve a continuous redefinition of self and of relationships and roles, in order to develop greater self-coherence and self-integration, as well as to learn to attain a balance between self-needs and the demands of social reality

(Lavoie, 1994). It is expected, however, that by adulthood, individuals have forged a more defined sense of identity, and it may be the case that attachment variability and lack of clarity in views become maladaptive in adulthood. In this light, adolescent attachment instability might reflect a healthy search of one's own identity rather than a maladaptive personal characteristic.

In sum: Findings in light of the models of attachment style change

In this study, the Contextual model of attachment style change was used as a general framework to generate predictions regarding associations between life events and attachment security, and the Individual Difference model of attachment style change was used as a general framework to generate predictions pertaining to associations between attachment instability/insecurity and adjustment. A diathesis-stress model of adjustment outcomes was also investigated whereby attachment insecurity and instability put adolescents at increased risk for deviant behaviours and psychological distress in the context of negative life events.

This longitudinal study involving a sample of adolescents sought to further investigate attachment style stability, and better understand the significance of attachment instability, in relation to behavioural and psychological maladjustment. Stable attachment insecurity and attachment style instability were considered vulnerability factors in this study, and it was hypothesized that these factors would be associated with more internalizing (dysphoria) and externalizing (delinquency, drug use) problems.

The hypothesis that individuals who experienced a higher number of negative life events during the course of the study would manifest decreasing security over time, was not supported. My findings did show that negative life events during adolescence were

associated with lower attachment security on average, however conclusions cannot be made regarding the directionality of the process; it may be the case that these teens were insecurely attached in the first place, and that their insecurity led them to experience a higher level of negative life events.

Further, findings showed that higher attachment variability was associated with lower attachment security, lending support to the postulate pertaining to the Individual Difference model of attachment change that attachment variability may be a form of attachment insecurity. The findings showed that attachment insecurity was associated with more internalizing and externalizing problems, and can thus be considered a possible vulnerability factor for maladjustment, however, this tended to be the case for attachment instability only with regards to dysphoria. Teens with more attachment instability tended to be more dysphoric, lending support to the hypothesis that attachment variability may be a contributing factor for dysphoria.

The findings pertaining to the diathesis-stress model of adjustment showed that teenagers who were less secure and who experienced a higher number of negative life events were significantly more delinquent than teenagers who were less secure but who reported a lower number of negative life events. Moreover, a particularly interesting finding emerged with respect to the high security/high life events teens and the low security/low life events teens; both groups were equally delinquent at Time 1, but whereas the latter group tended to remain relatively stable across time, the previous group tended to markedly increase in delinquency especially from the middle to the end of the four-year time-span. The combination of attachment insecurity and high negative life events rendered adolescents more vulnerable to engagement in delinquent behaviour.

These findings show that a combination of a contextual variable, such as negative life events, and an individual-difference variable, attachment insecurity, put teens at greater risk for maladjustment.

Limitations of the present study

An important limitation of the present study is the sole reliance on self-report measures. Several authors have found that self-reported attachment style and interview-assessed attachment style tend to show low to moderate correspondences (Scharfe & Bartholomew, 1994; Scharfe, 1995). One reason this may be is that, if as posited by Davila et al. (1999, 2003), some people's insecurity is reflected in instability and not in stable insecurity, they may report themselves as secure at a particular time but not at others. On the basis of interview assessments, however, such individuals may be classified as insecure because whatever it is that is making their self-reports fluctuate (tentative views of self and other for example) is likely to come through during an interview such as the AAI, where an individual's subconscious processes are tapped.

Another limitation of the present study is that the measure of Attachment security was solely based on ratings from the security scale of the Relationship Questionnaire. Most participants tended to report a score of five or above on this scale, with relatively little within-subject and between-subject variability. This may in part explain why when Attachment security was entered at level 1 in HLM analyses, results revealed that the variance component for the regression slope of security was consistently non-significant. Because of this, attachment security at the within-subject level of analysis could not be explored. A more sensitive assessment of attachment security would provide a more robust measure of mean attachment security and attachment security variability.

Furthermore, as noted previously, the use of a retrospective measure of negative life events over the course of three years, was a limitation. Assessing life events at each time-point would reveal whether negative life events tend to precede changes in security, or whether negative life events rather tend to further crystallize already existing attachment insecurity. Assessing negative life events, attachment security, and maladjustment at every time point in a longitudinal study would shed light on the reciprocal dynamics posited to exist between attachment security and negative life events, as well as between life events and maladjustment. Given the fact that attachment styles are postulated to develop in early infancy, it may be possible that an insecurely-attached individual since early youth generates stress and hence stressful events in her life (process of stress generation, Davila et al., 1999), which will further reinforce attachment insecurity, and consequently the experience of stress. During adolescence, a time of substantial intra-personal and extra-personal changes, identity-formation, and experimentation with novel and risky experiences, such as delinquency and drugs, it may be possible that negative life events, that are already involved in a mutually reinforcing process with attachment insecurity, also develop a mutually reinforcing process with maladjustment (Kim et al., 2003), thus leading to a third possible dynamic relationship between attachment insecurity and adjustment problems. A longitudinal study examining these processes would shed further light upon our conceptual and practical understanding of this topic.

Main strengths of the study include using longitudinal data spanning adolescence across four time-points, using Hierarchical Linear Modeling, a data-analysis strategy

most effective for investigating dynamic relationships between variables across time, and incorporating in the study adjustment variables relevant to adolescents' lives.

Concluding Comments

A main objective of the current study was to investigate attachment insecurity and attachment instability in relation to externalizing and internalizing outcomes in adolescence, that is, depression, delinquency, and drug use. This research theme is of substantial clinical importance in light of better understanding which factors render teens more vulnerable to experiencing adjustment problems. The findings showed that attachment insecurity was associated with more internalizing and externalizing problems, and can thus be considered a possible vulnerability factor for adjustment problems; however, this tended to be the case for attachment instability only with regards to Dysphoria. Of particular interest, the findings revealed that the combination of attachment insecurity and high negative life events renders adolescents more vulnerable to engagement in delinquent behaviour. Findings also revealed that negative life events represent the strongest vulnerability for engagement in delinquent activity.

The reciprocal dynamics existing between negative life experiences and attachment insecurity, between attachment insecurity and maladjustment, between negative life events and maladjustment, and between these sets of processes needs to be further investigated in order to better understand what puts teens most at risk for adjustment problems, and to better target intervention strategies. This line of research, which is only beginning, must be pursued.

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Appendix A

Letter to Student (Time 1)

We are writing to ask for your participation in a study of adolescents' relationships and emotional and behavioural adjustment. This study concerns changes with age in adolescents' relationships, the degree to which children's relationships are similar to, or different from their parents' relationships, and the contribution of the family and friendship factors to adolescents' relationships and adjustment.

We are asking permission for you, the student, to complete questionnaires at school. The questionnaires ask students about their relationships with parents and friends, their perceptions of family functioning, the ways they cope with stress, and their emotional and behavioural adjustment (e.g., mood, involvement in rule breaking activities, substance use, and sexual behaviour). These questionnaires have been used extensively in research with adolescents and deal with problems that adolescents often face. The questionnaires will take about 1.5 hours to complete in total. Students will complete these questionnaires, at times which are convenient for the teacher, during class time. Participation will be voluntary, and by written consent. Of course no student is ever forced to participate and all answers are confidential. Because it is important to understand changes over time, students will be approached again in one year, and again the next year, to complete similar questionnaires. However, there is no obligation to continue.

We are also asking **parents to complete similar questionnaires** about their relationships, self perceptions, and family functioning, this year only. The questionnaires will be mailed to you in the early fall to complete at your convenience, and will take about one hour of your time.

We would like as many **mothers and fathers** as possible to participate. Little is known about the role of fathers in children's social development; hence fathers' participation is very important. However, **if only one parent can participate, your help is still very important.** In return for participation, each parent will receive \$10 for his/her time. We will be pleased to send you a summary of the group results of the study when completed.

This project is funded by the Social Sciences and Humanities Research Council of Canada, and is concerned with how adolescents' relationships change with age, and what helps them have good relationships with friends, romantic partners, and family members. This work is important because good relationships foster the child's sense of well-being and school achievement. We also believe that this research will be helpful for understanding how adolescents cope with various challenges they face, and for developing effective intervention programs for adolescents (and their families) who are experiencing difficulties.

We hope that both students and their parents will consent to participate in this project, as your help is important to us. Please complete the enclosed consent form and return it to your French teacher. **We would like to know your decision even if you do not agree to participate.**

All students returning the form (whether the answer is yes or no) will have their names entered in a draw. Students returning forms will be eligible for a raffle to win: Cineplex Odeon movie passes, Laser Quest Passes, or HMV gift certificates!!

Appendix B

Letter to Student (Time 4)

JHS-YR4
February, 2002

Dear Student,

For the past three years, as you may remember, you have been participating in the Concordia Relationships and Well-being Project, telling us about your relationships, feelings and behaviour. You may have thought that we would leave you alone now, **but we are writing to invite you once again (this time the last) to help us with our study.**

We would like you to complete questionnaires during one class period at school, at times convenient for the teacher. The questionnaires are a lot like last year, but shorter, and ask about your relationships with parents, friends, and romantic partners, about important events in your life, and about how you feel and act (e.g., mood, breaking rules, drug use, and sex).

We really appreciate your help in the past years. **Your help again this year is very important** because we need to understand how changes in relationships affect students your age over time. **Besides, those students who choose to participate this year will again be entered in a GRAND-PRIZE draw for a SONY DISCMAN !!!**

Please complete the enclosed consent form, and return it to your French teacher as soon as possible. We need to hear from you even if you say no. **All students returning the form (whether answering "yes" or "no") will have their names entered in a draw for Cineplex Odeon movie passes or HMV gift certificates!!**

If you have any questions feel free to call one of us at the numbers below.
Thanks a lot!

Clairalice Campini, M.A.
Ph.D. Candidate
(848-7560)

Anna-Beth Doyle, Ph.D.
Professor of Psychology
(848-7538)

Dorothy Markiewicz, Ph.D.
Professor of Psychology and
Applied Human Sciences
(848-2268)

Appendix C

Student Consent Form (Time 1)

Centre for Research in Human Development
Department of Psychology
tel: (514) 848-7560 fax: (514) 848-2815

March 1999 (JHS-YR1)

Consent Form To Participate in Research

Student's Name _____

School _____ Grade _____

French Teacher's name/class: _____

Check as many as apply:

_____ I/We agree to the student's participation in the Relationships and Well-being study conducted by Drs. A.B. Doyle and D. Markiewicz. (Student and one parent please sign below).

_____ I, the student's parent, agree to participate. (Please sign below).

_____ My spouse also agrees to participate. (Please sign below).

_____ I wish to be called to discuss the project.
Please indicate your name and phone number:

_____ I do not agree to any of the above.

IF YOU AGREE TO PARTICIPATE, please complete the following:

I/We have been informed that the purpose of the research is to study students' relationships with peers and family, their adjustment and well-being. Participation will involve 1.5 hours of students' time, and, if parents consent, 1 hour of their time, completing questionnaires about friendships and family relationships, ways of dealing with stress, self-perceptions, and emotional and behavioral adjustment. I/We understand that all information will be confidential to the research team and identified only by number, and that general results may be published. I/We understand that I/we may withdraw my/our consent and may discontinue participation at any time.

Parent(s) Name(s) _____

Address _____

City & Postal Code _____ Phone Number _____

Mother's Signature (if applicable) _____

Father's Signature (if applicable) _____

Student's Signature _____ Date _____

Appendix D

Student Consent Form (Time 4)



Concordia
UNIVERSITY

Centre for Research in Human Development
Department of Psychology
tel: (514) 848-7560 fax: (514) 848-2815

April 2002 (JHS-YR4)

Consent Form For Students To Participate in Research

Student's Name: _____

Student's Date of Birth: _____ Age: _____

School: LCCHS Grade: _____ French Teacher's name/class: _____

Check where applicable:

_____ I agree to participate in the Relationships and Well-being study conducted by Clairalice Campini, Dr. Anna Beth Doyle, and Dr. Dorothy Markiewicz. (Student please sign below).

_____ Before I agree to participate, please call to discuss the project.
Here is my phone number: _____

_____ I do not agree to participate.

IF YOU AGREE TO PARTICIPATE, please complete the following:

I have been informed that the purpose of the research is to study students' relationships with peers and family, and well-being. Participation will involve approximately 45 minutes of my class time, completing questionnaires about friendships and family relationships, important life events, feelings and behaviour. I understand that **all information will be confidential** to the research team and identified only by number, although if life-threatening circumstances are reported, the research team will legally have to break confidentiality. I understand that I may withdraw consent and may discontinue participation at any time.

Student's Signature: _____ Date _____

Address _____

City & Postal Code _____ Phone Number _____

PLEASE RETURN THIS FORM TO THE FRENCH TEACHER AS SOON AS POSSIBLE.

Appendix E

General Information Form (Time 1)

Participation # _____

O=C

GENERAL INFORMATION FORM

The information provided in this form will help us describe the range of participants in our study.

1. Age: _____

2. Date of birth: _____

3. Sex: _____

4. Grade: _____

5. School: _____

6. What is your mother tongue (first language)? _____

7. What languages do you speak at home?

8. Who lives in your house with you?

Mom _____

Dad _____

Stepmom _____

Stepdad _____

Sisters (specify ages) _____

Brothers (specify ages) _____

Other adults (please specify) _____

9. My mom is (check one):

_____ Single

_____ Married

_____ Divorced

_____ Widowed

10. My dad is (check one)

_____ Single

_____ Married

_____ Divorced

_____ Widowed

10. My ethnic/cultural background is: _____

(e.g., Italian, Hispanic, African, ...)

Appendix F

General Information Form (Time 4)



GENERAL INFORMATION

Please do not mark in this area

				4
--	--	--	--	---

This information will help us describe the participants in our study.

1. Age:

--	--

Date of Birth:

--	--

 /

--	--

 /

--	--

DAY MONTH YEAR

2. Sex: ☐ Female ☐ Male

3. Grade: ☐ 8 ☐ 9 ☐ 10 ☐ 11

4. My mom is (☒ one box):

- ☐ Single
- ☐ Common-law
- ☐ Married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed
- ☐ Other

5. My dad is (☒ one box):

- ☐ Single
- ☐ Common-law
- ☐ Married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed
- ☐ Other

6. Who lives in your house with you?

(☒ all that apply)

- ☐ Mom
- ☐ Dad
- ☐ Stepmom
- ☐ Stepdad
- ☐ Sisters/Stepsisters
- ☐ Brothers/Stepbrothers
- ☐ Other (Specify) _____

7. For questions 4, 5 and/or 6, has this changed since last year?

☐ Yes ☐ No

8. Performance in academic subjects.

(☒ a box for each subject that you take)

a. English

☐ Failing ☐ Below Average ☐ Average ☐ Above Average

b. History or Social Studies

☐ Failing ☐ Below Average ☐ Average ☐ Above Average

c. Mathematics

☐ Failing ☐ Below Average ☐ Average ☐ Above Average

d. Science

☐ Failing ☐ Below Average ☐ Average ☐ Above Average

Appendix G

Relationship Questionnaire (with Mother)



RELATIONSHIP WITH MOTHER (RQM)

Participation #

--	--	--	--	--

If you don't have a mom or stepmom, just leave this blank and go to the next questionnaire.

Please tell us who you are thinking of when you fill out this questionnaire (☒ one box):

☐ Mom OR ☐ Stepmom

Think about your relationship with your mother. Now read each paragraph below and indicate to what extent each paragraph describes your relationship with your mother. Put an ☒ in the box UNDER the number that is true for you.

1. It is easy for me to become emotionally close to my mother. I am comfortable depending on my mother and having my mother depend on me. I don't worry about being alone or having my mother not accept me.

Not At All							Very Much
	1	2	3	4	5	6	7
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. I am comfortable not having a close emotional relationship with my mother. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on my mother or have my mother depend on me.

Not At All							Very Much
	1	2	3	4	5	6	7
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

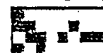
3. I want to be completely emotionally close with my mother, but I often find that my mother is reluctant to get as close as I would like. I am uncomfortable not having a close relationship with my mother, but I sometimes worry that she doesn't value me as much as I value her.

Not At All							Very Much
	1	2	3	4	5	6	7
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. I am uncomfortable getting close to my mother. I want to be emotionally close to my mother, but I find it difficult to trust her completely, or to depend on her. I worry that I will be hurt if I allow myself to become too close to my mother.

Not At All							Very Much
	1	2	3	4	5	6	7
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Draft



Appendix H

Self-Report Delinquency Questionnaire (Time 1)

This section asks about different behaviours that teenagers are sometimes involved in. Your answers are very important to us: we want to know what really happens for people your age so please answer all questions **honestly**. Remember, **ALL YOUR ANSWERS ARE CONFIDENTIAL**.

For each question,

- First indicate whether or not you have **ever** done what is described (☒ YES or NO).
- Then, if you answer YES, indicate how many times **in the last year** you have done each behaviour.
- If you answer NO, skip to the next question.

Have you ever ...?

1. Purposely damaged or destroyed property (includes vandalism/graffiti) belonging to your parents or other family members? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

2. Purposely damaged or destroyed property (includes vandalism/graffiti) belonging to your school or employer? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

3. Purposely damaged or destroyed other property (includes vandalism/graffiti) that did not belong to you, not counting family, school, or work property? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

4. Stolen or tried to steal a motor vehicle such as a car or motorcycle? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

5. Stolen or tried to steal something worth more than \$50.00? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 15 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

6. Knowingly bought, sold or held stolen goods or tried to do any of these things? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

7. Purposely set fire to a building, car, or other property or tried to do so? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

8. Carried a hidden weapon other than a plain pocket knife? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

9. Stolen or tried to steal things worth \$5.00 or less? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

10. Attacked someone with the idea of seriously hurting that person? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

11. Been involved in gang fights? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

12. Used checks illegally or used phony money to pay for something
(includes intentional overdrafts)?

☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

13. Sold marijuana or hashish (weed, pot, grass, hash)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

14. Hitchhiked where it was illegal to do so? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

15. Stolen money or other things from your parents or other members of your family? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

16. Stolen money, goods, or property from school or from the place where you work? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

17. Hit or threatened to hit one of your parents? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

18. Hit or threatened to hit your teacher, your supervisor or another employee? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

19. Hit or threatened to hit anyone else (e.g., friends, strangers)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

20. Been loud, rowdy, or unruly in a public place (disorderly conduct)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

21. Sold hard drugs such as cocaine, LSD (acid), heroin (or others)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

22. Tried to cheat someone by selling them something that was worthless or not what you said it was? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

23. Taken a vehicle for a ride or drive without the owner's permission? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

24. Bought liquor as a minor? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

25. Used force or "strong arm" methods to get money or things from people? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

26. Avoided paying for such things as movies, bus or metro rides, and food? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

27. Been drunk in a public place? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

28. Stolen or tried to steal things worth between \$5.00 and \$50.00? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

29. Broken into or tried to break into a building (including an abandoned building) or vehicle to steal something or just to look around? ☐ Yes ☐ No
- If "YES", how many times in the last year?
- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more
- If 13 or more times, how often?
- ☐ 2-3 times per month ☐ 1 or more times per week
-
30. Begged for money or things from strangers? ☐ Yes ☐ No
- If "YES", how many times in the last year?
- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more
- If 13 or more times, how often?
- ☐ 2-3 times per month ☐ 1 or more times per week
-
31. Failed to return extra change that a cashier gave you by mistake? ☐ Yes ☐ No
- If "YES", how many times in the last year?
- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more
- If 13 or more times, how often?
- ☐ 2-3 times per month ☐ 1 or more times per week
-
32. Used or tried to use credit cards without the owner's permission? ☐ Yes ☐ No
- If "YES", how many times in the last year?
- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more
- If 13 or more times, how often?
- ☐ 2-3 times per month ☐ 1 or more times per week
-
33. Made obscene telephone calls (such as calling someone and saying dirty things)? ☐ Yes ☐ No
- If "YES", how many times in the last year?
- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more
- If 13 or more times, how often?
- ☐ 2-3 times per month ☐ 1 or more times per week
-
34. Snatched someone's purse or wallet or picked someone's pocket? ☐ Yes ☐ No
- If "YES", how many times in the last year?
- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more
- If 13 or more times, how often?
- ☐ 2-3 times per month ☐ 1 or more times per week

35. Used money or funds entrusted to your care for some purpose other than that intended (embezzled money)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

36. Ganged up with friends, and used force or intimidation to get money or things from people (taxing)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

37. Been stopped by the police for questioning? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

38. Been arrested? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

☐ ☐

If "Yes", what were you charged with? _____

39. Been expelled from school? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week

Appendix I

Self-Report Delinquency Questionnaire (Time 4)



BEHAVIOURS

Please do not mark in this area

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This section asks about different behaviours that teenagers are sometimes involved in. Your answers are very important to us: we want to know what really happens for people your age so please answer all questions honestly. Remember, **ALL YOUR ANSWERS ARE CONFIDENTIAL**.

For each question,

- First indicate whether or not you have ever done what is described (☒ YES or NO).
- Then, if you answer YES, indicate how many times in the last year you have done each behaviour.
- If you answer NO, skip to the next question.

Have you ever ...?

1. Purposely damaged or destroyed property (includes vandalism/graffiti) belonging to your parents or other family members?

☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

2. Purposely damaged or destroyed property (includes vandalism/graffiti) belonging to your school or employer?

☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

3. Purposely damaged or destroyed other property (includes vandalism/graffiti) that did not belong to you, not counting family, school, or work property?

☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

4. Knowingly bought, sold or held stolen goods or tried to do any of these things? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

5. Carried a hidden weapon other than a plain pocket knife? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more



Draft

BEHAVIOURS

Please do not mark in this area

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6. Attacked someone with the idea of seriously hurting that person? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

7. Been involved in gang fights? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

8. Stolen money or other things from your parents or other members of your family? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

9. Stolen money, goods, or property from school or from the place where you work? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

10. Hit or threatened to hit one of your parents? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

11. Hit or threatened to hit anyone else (e.g., friends, strangers)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

12. Been loud, rowdy, or unruly in a public place (disorderly conduct)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more



BEHAVIOURS

Please do not mark in this area

				4
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13. Tried to cheat someone by selling them something that was worthless or not what you said it was?

☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

14. Bought liquor as a minor? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

15. Avoided paying for such things as movies, bus or metro rides, and food? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

16. Been drunk in a public place? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

17. Stolen or tried to steal things worth between \$5.00 and \$50.00? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

18. Broken into or tried to break into a building (including an abandoned building) or vehicle to steal something or just to look around?

☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

19. Made obscene telephone calls (such as calling someone and saying dirty things)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

Appendix J

Self-Report Substance Use Questionnaire (Time 1)



Alcohol and Drug Use

Please do not mark in this area

				1
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The next questions ask about your use of alcohol and drugs. As you did before, first indicate whether or not you have ever done what is asked. Next, indicate how many times you have done the behaviour in the last year.

Have you ever ...?

1. Used alcoholic beverages (beer, wine, liquor)? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

2. Has your use of alcoholic beverages increased/decreased/remained the same in the last year?

☐ increased ☐ decreased ☐ remained the same

3. Been drunk or high on alcoholic beverages (beer, wine, liquor)? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

4. Been drunk or high on alcoholic beverages at school or at work (beer, wine, liquor)? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

5. Used marijuana, or hashish (mari, weed, grass, pot, hash)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

6. Has your use of marijuana or hashish increased/decreased/remained the same in the last year?

☐ increased ☐ decreased ☐ remained the same

7. Been high on marijuana, or hashish (mari, weed, grass, pot, hash)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

8. Been high on marijuana, or hashish at school or at work (mari, weed, grass, pot, hash)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

9. Used hallucinogens (LSD, acid, mescaline, peyote, magic mushrooms)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

10. Used amphetamines (uppers, speed, pep pills, bennies, dexies, diet pills) that were not prescribed by a doctor? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

11. Used barbiturates (downers, reds, yellows, blues, rainbows, goof balls, sleeping pills) that were not prescribed by a doctor? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

If 13 or more times, how often?

☐ 2-3 times per month ☐ 1 or more times per week ☐ 1 or more times per day

12. During the past year, have you used tobacco? ☐ Yes ☐ No

13. When using tobacco, how much do you usually use? Please indicate *either*:

<input type="text"/> <input type="text"/>	cigarettes per day	OR	<input type="text"/> <input type="text"/>	cigarettes per month
1	<input type="text"/> <input type="text"/>		1	<input type="text"/> <input type="text"/>
2	<input type="text"/> <input type="text"/>		2	<input type="text"/> <input type="text"/>
3	<input type="text"/> <input type="text"/>		3	<input type="text"/> <input type="text"/>
4	<input type="text"/> <input type="text"/>		4	<input type="text"/> <input type="text"/>
5	<input type="text"/> <input type="text"/>		5	<input type="text"/> <input type="text"/>
6	<input type="text"/> <input type="text"/>		6	<input type="text"/> <input type="text"/>
7	<input type="text"/> <input type="text"/>		7	<input type="text"/> <input type="text"/>
8	<input type="text"/> <input type="text"/>		8	<input type="text"/> <input type="text"/>
9	<input type="text"/> <input type="text"/>		9	<input type="text"/> <input type="text"/>
0	<input type="text"/> <input type="text"/>		0	<input type="text"/> <input type="text"/>

14. Has your use of tobacco increased/decreased/remained the same in the last year?

☐ increased ☐ decreased ☐ remained the same

Appendix K

Self-Report Substance Use Questionnaire (Time 4)



Alcohol and Drug Use

Please do not mark in this area

				4
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The next questions ask about your use of alcohol and drugs. As you did before, first indicate whether or not you have ever done what is asked. Next, indicate how many times you have done the behaviour in the last year.

Have you ever ...?

1. Used alcoholic beverages (beer, wine, liquor)? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

2. Been drunk or high on alcoholic beverages (beer, wine, liquor)? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

3. Been drunk or high on alcoholic beverages at school or at work (beer, wine, liquor)? ☐ Yes ☐ No

If "YES", how many times in the last year? If "NO", skip to the next question.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

4. Used marijuana, or hashish (mari, weed, grass, pot, hash)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

5. Been high on marijuana, or hashish (mari, weed, grass, pot, hash)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

6. Been high on marijuana, or hashish at school or at work (mari, weed, grass, pot, hash)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

7. Used hallucinogens (LSD, acid, mescaline, peyote, magic mushrooms), amphetamines (uppers, speed, pep pills, bennies, dexies, diet pills) or barbiturates (downers, reds, yellows, blues, rainbows, goof balls, sleeping pills) that were not prescribed by a doctor? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 or more

8. During the past year, have you used tobacco? ☐ Yes ☐ No

9. When using tobacco, how much do you usually use?

Appendix L

Multiple Affect Adjective Checklist



Draft

FEELINGS (MAACLT-R)

Please do not mark in this area

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On this page, you will find words which describe different kinds of moods and feelings. Mark an ☒ in the boxes beside the words which describe how you generally feel. Some words may sound alike, but we want you to ☒ all the words that describe your feelings. Work rapidly.

I GENERALLY FEEL ...

- | | |
|---|--|
| 1. <input type="checkbox"/> affectionate | 28. <input type="checkbox"/> lonely |
| 2. <input type="checkbox"/> afraid | 29. <input type="checkbox"/> loving |
| 3. <input type="checkbox"/> alone | 30. <input type="checkbox"/> lost |
| 4. <input type="checkbox"/> angry | 31. <input type="checkbox"/> mad |
| 5. <input type="checkbox"/> annoyed | 32. <input type="checkbox"/> mean |
| 6. <input type="checkbox"/> complaining | 33. <input type="checkbox"/> miserable |
| 7. <input type="checkbox"/> critical | 34. <input type="checkbox"/> nervous |
| 8. <input type="checkbox"/> cruel | 35. <input type="checkbox"/> panicky |
| 9. <input type="checkbox"/> destroyed | 36. <input type="checkbox"/> peaceful |
| 10. <input type="checkbox"/> disagreeable | 37. <input type="checkbox"/> pleased |
| 11. <input type="checkbox"/> discouraged | 38. <input type="checkbox"/> pleasant |
| 12. <input type="checkbox"/> disgusted | 39. <input type="checkbox"/> polite |
| 13. <input type="checkbox"/> enraged | 40. <input type="checkbox"/> rejected |
| 14. <input type="checkbox"/> fearful | 41. <input type="checkbox"/> sad |
| 15. <input type="checkbox"/> free | 42. <input type="checkbox"/> satisfied |
| 16. <input type="checkbox"/> friendly | 43. <input type="checkbox"/> secure |
| 17. <input type="checkbox"/> frightened | 44. <input type="checkbox"/> shaky |
| 18. <input type="checkbox"/> furious | 45. <input type="checkbox"/> steady |
| 19. <input type="checkbox"/> glad | 46. <input type="checkbox"/> suffering |
| 20. <input type="checkbox"/> good | 47. <input type="checkbox"/> tender |
| 21. <input type="checkbox"/> good-natured | 48. <input type="checkbox"/> tense |
| 22. <input type="checkbox"/> happy | 49. <input type="checkbox"/> timid |
| 23. <input type="checkbox"/> hostile | 50. <input type="checkbox"/> understanding |
| 24. <input type="checkbox"/> impatient | 51. <input type="checkbox"/> warm |
| 25. <input type="checkbox"/> interested | 52. <input type="checkbox"/> whole |
| 26. <input type="checkbox"/> irritated | 53. <input type="checkbox"/> worrying |
| 27. <input type="checkbox"/> joyful | |

Appendix M

Social Desirability Scale (Time 1)



MC-SD

Please do not mark in this area

				1
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For the following questions, please ☒ "T" for True and "F" for False.

	True	False
1. I'm always willing to admit it when I make a mistake.	<input type="checkbox"/> T	<input type="checkbox"/> F
2. I have never been annoyed when people expressed ideas very different from my own.	<input type="checkbox"/> T	<input type="checkbox"/> F
3. I have never deliberately said something that hurt someone's feelings.	<input type="checkbox"/> T	<input type="checkbox"/> F
4. I like to gossip at times.	<input type="checkbox"/> T	<input type="checkbox"/> F
5. There have been occasions when I took advantage of someone.	<input type="checkbox"/> T	<input type="checkbox"/> F
6. I sometimes try to get even rather than to forgive and forget.	<input type="checkbox"/> T	<input type="checkbox"/> F
7. At times I have really insisted on having things my own way.	<input type="checkbox"/> T	<input type="checkbox"/> F

Appendix N

Social Desirability Scale (Time 4)



For the following questions, please ☒ "T" for True and "F" for False.

	True	False
1. It is sometimes hard for me to go on with my work if I am not encouraged.	<input type="checkbox"/> T	<input type="checkbox"/> F
2. I sometimes feel resentful when I don't get my way.	<input type="checkbox"/> T	<input type="checkbox"/> F
3. On a few occasions, I have given up doing something because I thought too little of my ability.	<input type="checkbox"/> T	<input type="checkbox"/> F
4. I like to gossip at times.	<input type="checkbox"/> T	<input type="checkbox"/> F
5. There have been times when I felt like rebelling against people in authority even though I knew they were right.	<input type="checkbox"/> T	<input type="checkbox"/> F
6. No matter who I'm talking to, I'm always a good listener.	<input type="checkbox"/> T	<input type="checkbox"/> F
7. There have been occasions when I took advantage of someone.	<input type="checkbox"/> T	<input type="checkbox"/> F
8. I'm always willing to admit it when I make a mistake.	<input type="checkbox"/> T	<input type="checkbox"/> F
9. I sometimes try to get even, rather than forgive and forget.	<input type="checkbox"/> T	<input type="checkbox"/> F
10. I am always courteous, even to people who are disagreeable.	<input type="checkbox"/> T	<input type="checkbox"/> F
11. At times I have really insisted on having things my own way.	<input type="checkbox"/> T	<input type="checkbox"/> F
12. I have never been annoyed when people expressed ideas very different from my own.	<input type="checkbox"/> T	<input type="checkbox"/> F
13. There have been times when I was quite jealous of the good fortune of others.	<input type="checkbox"/> T	<input type="checkbox"/> F
14. I am sometimes irritated by people who ask favours of me.	<input type="checkbox"/> T	<input type="checkbox"/> F
15. I have never deliberately said something that hurt someone's feelings.	<input type="checkbox"/> T	<input type="checkbox"/> F

Appendix O

Adolescent Life Change Event Scale



LIFE EVENTS SCALE

Please do not mark in this area

				4
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Have the following events ever happened to you *in your life*?

Please indicate whether each event occurred...

	In the past 3 years?	Before the past 3 years?
1. A parent dying	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Brother or sister dying	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Close friend dying	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Parents getting divorced or separated	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Failing one or more subjects in school	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Flunking a grade in school	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Family member having trouble with alcohol	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Getting into drugs or alcohol	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Parent or relative in your family getting very sick	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Losing a job	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
11. Breaking up with a close girlfriend or boyfriend	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Quitting school	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Close girlfriend getting pregnant	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. Parent losing a job	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. Getting badly hurt or sick	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. Fighting with parents	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Trouble with teacher or principal	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
18. Having problems with body image (for ex. acne, weight, height)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. Starting a new school	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. Moving to a new home	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
21. Change in physical appearance (for ex. braces, glasses)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
22. Fighting with brother or sister	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
23. Starting menstrual periods (for girls)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
24. Having someone new move in with your family (for ex. grandparent, adopted brother or sister)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
25. Starting a job	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
26. Mother getting pregnant	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
27. Starting to date	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
28. Making new friends	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
29. Brother or sister getting married	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
30. Parents having money problems	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No



Draft

LIFE EVENTS SCALE

Please do not mark in this area

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- 31. Parents fighting a lot
- 32. Parent remarrying
- 33. Getting pregnant or getting someone pregnant
- 34. Getting or giving a sexually transmitted disease
- 35. Getting into trouble with the law

in the past 3 years?		Before the past 3 years?	
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No